BROADVIEW GREEN GRID
4TH AVE NW TO PHINNEY AVE N

0-02.2

SPEC/MOF/mof

CRN 03-5C

June 12, 2003

AMENDMENTS AND SPECIAL PROVISIONS

0-02.3 PLANS, DRAWINGS AND SPECIFICATIONS (2-7-01)

The Work shall be performed in accordance with these amendments and Special Provisions together with the provisions, insofar as they are applicable, of the following documents:

1. The Engineering Drawing No. **777-580**, Sheets 1 through **59** .

2. The City of Seattle Standard Plans and Standard Specifications, which are comprised of:

   a. "2003 edition City of Seattle Standard Specifications for Road, Bridge, and Municipal Construction" (hereinafter referred to as the Seattle Standard Specifications).

   b. 2003 edition City of Seattle Standard Plans for Municipal Construction (hereinafter referred to as the Seattle Standard Plans).

   c. City of Seattle Traffic Control Manual for In-Street Work, dated August 1, 1994, which supplements and is to be utilized in conjunction with the current edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)," as published by the U.S. Department of Transportation, Washington, D.C.

3. The terms and conditions of such permits, agreements, ordinances, regulations, instructions and requirements as may be included in the appendix or otherwise attached hereto.

   NOTE: The amendments and Special Provisions for this Project have been updated to include the appropriate portions of the 2002 WSDOT/APWA Standard Specifications for Road, Bridge and Municipal Construction.

0-02.4 LOCATION OF PROJECT (10-16-00)

This Project is bounded by Phinney Ave N to the east, 4th Ave NW to the west, NW107th St to the south and NW 110th St to the north.

0-02.5 NATURE OF IMPROVEMENT (10-16-00)

The Work in general consists of constructing natural drainage elements to replace existing ditch and culvert roadway drainage; reconstruction of existing roadways; irrigation; landscape prep work and such other related and incidental work as may be necessary in conjunction therewith.

DIVISION 1

GENERAL REQUIREMENTS

1-01.3 DEFINITIONS

Supplement this Section with the following:

EROSION & SEDIMENTATION CONTROL LEAD

A person who is certified as an Erosion & Sedimentation Control (ESC) Lead by Washington State Department of Transportation or the Associated General Contractor's of America or equal.

SECTION 1-02 BID PROCEDURES AND CONDITIONS

1-02.4 EXAMINATION OF BID DOCUMENTS AND PROJECT SITE

1-02.4(1) GENERAL (02-20-03) [2]

Supplement this Section with the following:

A mandatory pre-bid site inspection tour will be held on Wednesday, July 9, 2003, at 10:00 AM; meet at the corner of NW 107th St and 1st Ave NW. Jim Johnson, SPU Project Manager, phone (206) 684-5829 will lead the tour.

No Bid will be accepted from any Bidder who does not attend the mandatory pre-bid meeting.

1-02.4(2) SUBSURFACE INFORMATION [1] (9-6-02)

Supplement this section with the following:

*A geotechnical report is available for this Project Site. To review the geotechnical report in its entirety, contact the:

Records Vault Counter
Seattle Public Utilities
Room 4798, Key Tower
700 Fifth Avenue
Seattle, WA 98104-5004
(206) 684-5963

Logs of soil borings from the geotechnical report are located in the appendix of the Project Manual.*

1-02.9(3) BIDDER/SUBCONTRACTOR LIST

Delete the last paragraph in this Section.

1-02.14 DISQUALIFICATION OF BIDDERS (10-16-00) [2]

Supplement this Section with the following:

12. The Bidder failed to attend a mandatory pre-bid conference (see Section 1-02.4(1)).*

SECTION 1-04 SCOPE OF WORK

1-04.5(4) MEDIATION (01-09-03)

Delete this Section in its entirety and replace with the following:

If the Engineer denies the claim and prior to the initiation of any judicial proceedings, the Contractor shall within thirty (30) days of receiving the Engineer's Written Notice denying the claim or before the Completion Date, whichever comes first, file a dated Written Notice with the Engineer of its election to utilize a non-binding resolution procedure whereby each party presents its case at a hearing (the "Hearing") before a mutually acceptable mediator. The date the Written Notice is submitted to the Engineer shall be the date of filing the Written Notice. The Contractor shall not be allowed to change the scope of the claim as presented in Section 1-04.5(3). The Mediation Hearing will occur after the Contractor files Written Notice to use outside mediation by no more than sixty (60) days unless both the Contractor and the Engineer agree to a later date. Each party may be represented at the Hearing by lawyers. If the matter cannot be resolved at such Hearing, the mediator may be asked to assist the parties in evaluating the strengths and weaknesses of each party's position on the merits of the disputed matter. The parties shall each bear their respective costs incurred in connection with this procedure, except that they shall share equally the fees and expenses of the mediator and the costs of the facility for the Hearing. If mediation does not resolve the disputed matter, thereafter, the Contractor may pursue judicial resolution in a court of competent jurisdiction in King County, Washington within the timeline stated in Section 1-04.5(5).

SECTION 1-05 CONTROL OF WORK

1-05.5 CONSTRUCTION STAKES

1-05.5(1) GENERAL

Supplement this Section with the following:

Seattle Public Utility (SPU) Surveyors are available to the Contractor to perform Contractor required survey work at the Contractor's cost based on time and material at the current SPU rate of $81.45 per hour, per person. Cost of this work will be deducted from the monthly payment(s) due the Contractor.

1-05.5(2) ROADWAY AND UTILITY SURVEYS

Delete this Section and replace with the following:

The Engineer will furnish to the Contractor one (1) time only, the principal survey control, lines, grades, and measurements the Engineer deems necessary to accomplish the Work. Unless the Contract specifies otherwise, this information will include the following as applicable:

1. Survey control will be set by the Engineer as follows: control hubs and tacks will be set at 25 foot increments (whenever possible) on each side of the street right-of-way,
2. The Engineer will furnish the Contractor with a Survey Control sheet(s) for each street of the project that lists the street monument stationing, offset from the street monument line and the elevation for all survey control set,
3. The Engineer will furnish the Contractor with Stake-Out sheets for each street of the project that lists the street monument stationing, the offset from street monument line and the elevation for Engineer established construction Stake-Out points for all drainage structures, swales and roadway features,
4. The Engineer will set all offset points along Northwest 107th Street and North 107th Street to establish line and grade for drainage structures such as Outlet Structures, Maintenance Holes, Weir Walls, and Culverts.

All drainage structures and roadway features listed in the Engineer provided Stake-Out sheets must meet an accuracy of 0.04 feet in location and 0.02 feet in elevation. All swales listed in the Engineer provided Stake-Out sheets, noted as 'Critical', must meet an accuracy of 0.25 feet in location and 0.08 feet in elevation. All points adjacent to a roadway must meet an accuracy in location of 0.25 feet. Other points listed must meet

an accuracy of 0.50 feet in location and 0.13 feet in elevation. A sample of the survey data that will be provided to the Contractor can been found in the Appendix. Data includes Cross Sectional views at 25 foot increments corresponding to the control hubs. The actual Survey Control and Stake-Out sheets will be provided to the Contractor prior to the start of construction of each Street or Avenue.

The Contractor shall use the furnished information for all necessary calculations and survey to complete the Work. The Contractor is fully responsible for staking all drainage structures, swales and roadway features, not mentioned as the responsibility of the Engineer, per the contract specifications.

SECTION 1-07 LEGAL RELATIONS AND RESPONSIBILITES TO THE PUBLIC

1-07.5(2) WATER QUALITY

Delete this Section in its entirety and replace with the following:

The Contractor shall comply with city ordinances, State, and federal laws and other regulations or rules applicable to water pollution occurring in waters of the State and in interstate waters.
The Contractor shall:

1. Manage surface water flows and other waters generated by construction activities (e.g. dewatering fluids) to prevent the contamination of adjacent public and private drainage systems and natural water bodies, including groundwater.
2. Provide for the flow of all watercourses, including but not limited to streams, ditches, sewers, and drains intercepted during the progress of the Work.
3. Completely restore disturbed watercourses in as good condition as the Contractor found them, or make such final provisions for them as the Engineer may direct.
4. Not obstruct the gutter of any Street.
5. Use all proper measures to provide for the free passage of surface water.
6. Remove and dispose of all surplus water, mud, silt, slicking, or other run-offs removed from excavations or resulting from sluicing or pavement cleaning or other operations in accordance with the dewatering disposal requirements of this section.
7. Make all applicable notifications required by Section 1-07.28.

The Contractor shall comply with the water quality criteria required by the Department of Ecology and regulations of:

1. The Washington State Department of Fish and Wildlife.
2. Those federal statutes on oil spills enacted under the federal Water Pollution Control Act Amendments of 1972 (a copy of which may be obtained from the U.S. Environmental Protection Agency).
3. The water quality standards of the State of Washington as set forth in Chapter 173-201A WAC.
4. The City of Seattle Stormwater, Grading and Drainage Control Code (SMC 22.800) – Volume 2: Construction Stormwater Control Technical Requirements Manual.
5. Any local statutes, regulations, ordinances, or rules, which stipulate the various types of discharge prohibited in public sewer systems or any drainage ditch in the local jurisdiction.

There are additional statutes on water pollution covering liability of the Contractor, penalty for violation, liability and damages for injury or death of fish, animals or vegetation. As an aid to the Contractor, some though not all, of the rules set forth by the various State and local departments are summarized below. The Contractor is cautioned, however, that each Department may add other restrictions, as they deem necessary, to protect fish and to prevent air or water pollution:

1. State Department of Fish and Wildlife: In doing the Work the Contractor shall:
    a. Not degrade water quality in a way that would harm fish. (The Washington State Water Quality Regulations will serve as water quality criteria for the Work.)
    b. Notify Engineer if any fish are stranded by the work.
    c. Replant any stream bank or shoreline areas (if the Work has disturbed the vegetative cover) utilizing native plants with species, size, density, along with soil preparation and planting requirements documented on a plan subject to approval by the Engineer

d. Provide an open water channel at the lowest level of any isolated pothole remaining when the Work is complete.
e. Protect fish by preventing harmful siltation on the bed or bottom of any body of water.
f. Not block stream flow or fish passage.
g. Keep all Equipment out of any flowing stream or other body of water (except as the Contract may permit).
h. Not remove gravel or other bottom material from within the high-water flow channel bed of any stream nor from the bottom of any other body of water (except as the Contract may permit).
i. Dispose of any Project debris beyond high-water flows.

2. State Department of Ecology: In doing the Work, the Contractor shall:
   a. Obtain a waste discharge permit from the Department of Ecology before:
      (1) Washing aggregate, and
      (2) Discharging water into a ground or surface waterway from pit sites or excavations when the water contains turbidity, silt, or foreign materials.
   b. Provide the Engineer with a copy of each waste discharge permit before starting the Work.
   c. Control drainage and erosion to minimize the pollution of any waterway.
   d. Dispose of all toxicants (including creosote, oil, cement, concrete, and water used to wash Equipment) in ways that will prevent them from entering State waters.
   e. Dispose of all debris, overburden, and other waste materials in ways that will prevent them from entering State waters.

3. City of Seattle: In doing the work, the Contractor shall use temporary and permanent erosion and sedimentation construction controls. Rules promulgated jointly by the Directors of SPU and DCLU specify the minimum required controls as well as additional controls that may be required by the Director of DCLU when minimum controls are not sufficient to prevent erosion or transport of sediment or other pollutants from the site. In doing the Work, the Contractor shall meet the requirements of Section 1-07.15 and 8-01.

The Contractor shall perform such temporary work as may be necessary to effectively control water pollution, erosion, and related damage due to construction activity on or off the Project Site including but not limited to public transportation corridors used for transport and work areas used for sockpiling, storage of equipment or materials, etc.located outside the Project Site. Failure to provide acceptable control may result in a suspension of the work ordered by the Engineer per 1-07.15. When temporary control facilities or measures are no longer needed, they shall be removed and the areas restored or finished with permanent erosion control provided by the contractor and approved by the Engineer. Restoration of work areas off site shall be at the contractor's expense.

If Work is suspended for an extended period of time, the Contractor shall be responsible for controlling erosion, pollution, sedimentation, and runoff during the shutdown period and shall provide site inspection reports documenting and dating all work provided (as required to meet the Stormwater Pollution Prevention Plan (SWPPP) requirements, Section 8-01) for the purpose of processing payment for bid items under the contract.

In addition to other requirements in the Contract, this temporary work shall include, but is not limited to, the following water quality considerations:

1. Diversion of Uncontaminated Water: Storm water shall be diverted around the Project to prevent pickup of silt. This may be accomplished by pumping; improvising ditches; lining channels or by placing metal, plastic or concrete gravity pipe; constructing ditches, berms, Culverts, etc., to control surface water; or constructing dams, settling basins, or energy dissipaters to control down stream flows.

2. Intercepting Ground Water: Surfacing ground water shall be intercepted and routed around the construction site to prevent silt erosion by the use of gravel trenches, French drain tiles, well points, or interceptor ditch. The Contractor shall provide means of controlling underground water that may be encountered during the Work.

3. Turbid Water Treatment Before Discharge: Determination of turbidity in surface waters shall be at the discretion of the Engineer; for Lake Class Receiving Waters, turbidity shall not

exceed 5 NTU (Nephelometric Turbidity Units) over background conditions; for Piper's Creek Waters, turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU; for other classes of waters, refer to WAC 173-201-045 and WAC 173-201A-030.

The term turbidity means the optical property of sample demonstrating the scattering and absorption of light caused by suspended material as expressed in Nephelometric Turbidity Units and measured with a calibrated turbidimeter.

Discharges to a State waterway caused by aggregate washing, drainage from aggregate pit sites, and stockpiles or dewatering of pits and excavations shall not increase the existing turbidity of the receiving waters. Turbid water from the Project Site shall be treated before being discharged into stream or other State waters. Turbidity may be removed by the use of lagoons or holding ponds, settling basins, overflow weir, polymer water treatment, discharging to ground surface, by percolation, evaporation or by passing through gravel, sand or fiber filters.

4. Erosion Control: Installation and maintenance of temporary erosion control measures shall be timely and shall protect existing trees, vegetation, and soils from disturbance in addition to protecting exposed areas and stockpiles until permanent measures are put in place. Best Management Practices (BMP's) shall include temporary fencing to define disturbed and protect undisturbed areas along with, mulching, matting, and /or plastic sheet covering to protect stockpiles and exposed ground areas to prevent erosion. The Contractor shall be alert to certain conditions where alternative erosion control methods and other soil stabilization techniques may be required. More specific requirements are detailed in Section 1-07.15 and Section 8-01.

5. Chlorine Residual: Water containing chlorine residual shall not be discharged directly into Storm Drains, streams, or State waters. Chlorine water may be discharged into sanitary sewers or disposed on land for percolation. Chlorine residual may be reduced chemically with a reducing agent such as sodium thiosulphate or vitamin C. Water shall be periodically tested for chlorine residual.

6. Vehicle and Equipment Washing: Temporary erosion and sediment control measures to contain water used for washing vehicles and Equipment shall be provided to prevent entry of wash water directly into Storm Drains, streams or other State waters. Separation of petroleum products, fresh concrete products or other deleterious material is required prior to discharge. Detergent solution may be discharged into sanitary sewers or held on the ground for percolation. A recirculation system for detergent washing is recommended. Steam cleaning units shall provide a device for oil separation.

7. Oil and Chemical Storage and Handling: Handling and storage of oil and chemicals shall not take place adjacent to waterways. The storage shall be made in dike tanks and barrels with drip pans provided under the dispensing area. Shut-off and lock valves shall be provided on tanks. Shut-off nozzles shall be provided on hoses. Oil and chemicals shall be dispensed only during daylight hours unless the dispensing area is properly lighted. Should an oil or chemical spill occur, the Contractor shall make the notification in accordance with Section 1-07.28 and Section 1-07.31(3)B.6. Fencing shall be provided around oil storage. Locks shall be provided on valves, pumps, and tanks. More specific requirements are detailed in Section 1-07.31.

8. Sewage: If a sanitary Sewer line is encountered and repair or relocation work is required, the Contractor shall provide blocking and sealing of the sanitary Sewer line. Sanitary Sewer flow shall be pumped out, collected, and conveyed or pumped directly to a sanitary Sewer system manhole for discharge. The existing Sewers shall be maintained by the Contractor without interruption of service by the use of temporary Sewer bypasses. In addition, the excavated materials adjacent to and around a rupture of a sanitary or combined Sewer pipeline shall be removed to a disposal site. Equipment and tools in contact with the above materials shall be washed by pressure water lines and the attendant wash water discharged into a sanitary Sewer line for transmission to a sewage treatment plant.

9. Sawcutting, Planing, and Grinding By-Products: The Contractor shall take special precautions to ensure that no concrete, asphalt, concrete by-products, or asphalt byproducts from, or used in, the drilling, saw-cutting, grinding, or planing of asphalt cement or cement concrete pavements, sidewalks, curbs, etc. are discharged into any Storm Drain or surface water system. Such discharge is prohibited by the Department of Ecology. In as much as saw-cutting by-products increase the pH of the wastewater, filtering prior to discharge will NOT be acceptable. Impervious surfaces contaminated with sediment and grit from drilling, saw-cutting, planing or pulverizing operations shall be cleaned by sweepers to prevent contaminants from entering the Storm Drainage system or surface waters when it rains.

10. Gutters and other Surface Drainage Channels: All Construction, Demolition, and Landclearing Waste and byproduct entering gutters and other pavement surface drainage channels shall be prevented from entering any inlet, catch basin, or other drainage structure or feature. Material shall be removed from drainage channels on a regular basis. Temporary filters or filter materials approved by the Engineer shall be placed and maintained by the contractor in drainage channels to prevent the passage of material.

11. Construction and Dewatering Water Disposal: – All water removed from the construction site must meet state water quality requirements and have City approval prior to disposal into the storm drains or have approval from the King County industrial Waste Division and meet their water quality requirements prior to disposal into a sanitary or combined sewer. This may require that the Contractor bring a settling tank, such as a bake tank or similar device, on-site to settle sediment out of the water before discharge.

1-07.5(3) AIR QUALITY

Supplement this Section with the following:

It is the intent of the City to minimize polluting air emissions resulting from Work operations. The Contractor shall take all reasonable measures to minimize air emissions. Recommended measures include:

1. Fueling on-road diesel equipment with Ultra Low Sulfur Diesel (ULSD) or bio-diesel fuel. USEPA will require fuel for all heavy-duty on-road diesel engines to meet the ULSD standard of 15 ppm sulfur in 2006. However, the Contractor is encouraged to fuel on-road equipment using ULSD or bio-diesel fuel to reduce emissions as soon as it is practical.
2. Installing emission reduction retrofit devices, such as Diesel Oxidation Catalysts or Diesel Particulate Filters, on on-road and off-road diesel equipment. New USEPA emissions standards will be implemented on new heavy-duty on-road diesel engines beginning in model year 2006. However, the Contractor is encouraged to install retrofit equipment to reduce emissions from road equipment.
3. Implementing a vehicle maintenance program to keep equipment in optimal running order.
4. Using cleaner alternative fuel vehicles and equipment, e.g. CNG or hybrid cars.
5. Organizing carpools or other alternative transportation systems for construction workers.
6. Develop and implement a vehicle idling policy that allows idling only to support construction operations, e.g. hydraulics.
7. Locating construction equipment and truck staging areas to minimize public exposure to diesel emissions.
8. Routing and scheduling construction trucks to reduce delays to traffic during peak travel times.

1-07.5(4) NOISE POLLUTION

Supplement this Section with the following:

Compliance with off-hour, holiday, and weekend restrictions is required for all non-emergency work unless specifically authorized by the Engineer. *

1-07.11(7) TRAINING AND PROMOTION

Delete this Section and Title in its entirety and replace with the following:

***1-07.11(7) APPRENTICE UTILIZATION AND EEO REPORTING (New Section) (9-6-02)**

1-07.11(7)A GENERAL (New Section) (9-6-02)

Notwithstanding any other provisions in the Project Manual, this Contract does not require any specific levels of utilization of minority and women as apprentices, except as may be specified in any federal regulations or statutes included or referenced in the Contract Documents. All other requirements of the City's apprenticeship program shall apply as specified in the Contract Documents. The City encourages the Contractor to employ a workforce reflective of the region's diversity. The Contractor shall adhere to all non-discrimination requirements as set forth in Federal and State laws and regulations and Seattle municipal code provisions.

The Owner has determined that there is a need for increased training and apprenticeship opportunities in the construction industry and that a diverse and well trained workforce is critical to the economic as well as social vitality of the region. In addition, the Owner has determined that compliance by the Contractor with the apprentice utilization requirements of the Contract must be consistent with the provisions of Chapter 49.04 RCW and Chapter 296.04 WAC.

In establishing requirements for the use of apprentices on the Project, it is the Owner's intent to encourage the training and promotion of apprentices to journey level status.

Any questions, monthly reports, or other submittals regarding the apprentice utilization requirements of the Contract shall be directed to:

Contracting Services Division
Department of Executive Administration
Arctic Building, Suite 800
700 Third Avenue
Seattle, WA 98104-1809
(206) 684-0430

1-07.11(7)B APPRENTICE UTILIZATION REQUIREMENTS AND GOALS (New Section) (9-6-02)

The total APPRENTICE UTILIZATION REQUIREMENT for this Project shall be:

15%

The Contractor shall ensure that the above percentage of the total Contract labor hours utilized on the Project are performed by apprentices registered with the Washington State Apprenticeship and Training Council, hereinafter known as SAC.

a. Total Contract labor hours include additional hours worked as a result of Change Orders.
b. Total Contract labor hours exclude hours worked by foremen, superintendents, supervisors, owners, and workers who are not subject to prevailing wage requirements. However, total Contract labor hours shall include the hours worked by supervisors, foremen, and superintendents if it is determined that they are subject to prevailing wage requirements pursuant to the following criteria of WAC 296-127-015:

Two (2) supervisors (e.g. foreman, general foreman, superintendents, etc.) are entitled to receive at least the journey level prevailing rate of wage for performing manual or physical labor:

(a) For each hour spent in the performance of manual or physical labor if it is for more than twenty percent but less than fifty percent of their hours worked on a public works project during any given week.
(b) For all hours worked in any given week if they perform manual or physical labor for fifty percent or more of their hours worked on a public works project during such week.

The Contractor shall include the apprentice utilization requirements of Section 1-07.11(7)B in all subcontracts executed for the Project, and ensure that all Subcontractors working on the Project are notified of the apprentice utilization requirements. The Contractor is responsible for meeting the apprentice utilization requirements of the Contract, including overall compliance on all Contract labor hours worked by Subcontractors.

The Contractor shall make good faith efforts to:

a. Ensure that apprentice hours worked are equally distributed in each trade/craft and consistent with the apprentice utilization percentage requirement of the Contract.
b. Recruit and hire minority and women apprentices for the Project. Of the total apprentice utilization requirement percentage, the Contractor shall pursue a goal of using twenty-one (21%) labor hours performed by minority apprentices and twenty percent (20%) labor hours performed by women apprentices.

The Contractor shall ensure compliance with the apprenticeship training standards for each trade/craft classification used on the Project, as set forth by the Washington State Department of Labor and Industries.

1-07.11(7)C APPRENTICE UTILIZATION PLAN (New Section) (9-6-02)

At the Pre-construction Meeting, the Contractor shall submit to the Department of Executive Administration, a comprehensive plan outlining how the apprentice utilization requirements will be met on the total Contract labor hours. The plan shall include the following information, on a form to be provided by the Owner or by accessing http://www.cityofseattle.net/contract/apprentice.htm.

a. A list of all trades/crafts to be used on the Project, including an estimate of labor hours by trade/craft and the total labor hours to be used.
b. An estimate of the number of apprentices for each trade/craft to be used on the Project.
c. An estimate of the number of apprentice labor hours and percentage to be used by each trade/craft on the Project. The combined total number of apprentice hours used must equal or exceed the required apprentice utilization percentage. (Section 1-07.11(7)B).
d. An estimate of the percentage of apprentice labor hours to be used by each trade/craft. The percentage of apprentice labor hours must be based on the estimate of total labor hours by each trade/craft.
e. An estimate of the start date for each trade/craft.
f. A description of efforts the Contractor intends to make to ensure that the apprentice utilization requirement and goals are met.
g. A description of any assistance the Contractor believes will be necessary from the Owner to meet the apprentice utilization requirement and goals.

The Department of Executive Administration will provide assistance in directing the Contractor to available resources for hiring apprentices.

The Contractor, the Engineer, and the Department of Executive Administration shall meet to discuss and modify the plan as may be appropriate.

1-07.11(7)D CHANGES TO THE APPRENTICE UTILIZATION REQUIREMENT (New Section) (9-6-02)

If, during the term of the Contract, the Contractor determines that it will be unable to meet the apprentice utilization percentage required by Section 1-07.11(7)B2, the Contractor may make a written request to the Engineer, (directed to the Department of Executive Administration), to reduce the required apprentice utilization percentage. The request shall include documentation of the Contractor's affirmative efforts to use SAC registered apprentices, including copies of correspondence between the Contractor and the SAC approved apprentice programs, union locals, and others. These documents must demonstrate that an inadequate number of apprentices are available to meet the required apprentice utilization percentage.

The Department of Executive Administration shall evaluate the request, and if appropriate, a Change Order shall be prepared by the Engineer reducing the required utilization percentage. If the Department of

Executive Administration determines that a reduction in the required utilization percentage is not justified, the Department of Executive Administration shall communicate the decision in writing to the Contractor.

1-07.11(7)E MONTHLY EEO/APPRENTICE UTILIZATION REPORT (New Section) (9-6-02)

The Contractor shall submit to the Department of Executive Administration a Monthly EEO/Apprentice Utilization Report in an electronic format to be provided by the Owner, for the Contractor and all Subcontractors. The Monthly EEO/Apprentice Utilization Report form shall be completed by the Contractor and all Subcontractors performing work on the Project during the reporting period. (Forms are available by calling (206) 684-0430 or by accessing http://www.seattle.gov/contract/apprentice.htm. The report shall be submitted by the 15th of the month following the reporting period to the Department of Executive Administration. A copy shall be sent to the Engineer.

The Contractor shall be responsible for reporting apprentice utilization data required by the Owner beginning with the first day of work for each apprentice. The Contractor's first submittals are due at the end of the first month after the Notice to Proceed Date, and at monthly intervals thereafter, until the Physical Completion Date has been established. Subcontractor submittals are due at the end of the month after commencement of their work and monthly thereafter.

The Contractor shall report the following information on each apprentice:

a. Apprentice's Name
b. Social Security Number
c. Home Zip Code
d. Employment Status: New Hire or Existing Staff
e. Trade/Craft
f. State Apprentice Registration I.D. Number
g. Program Sponsor and/or Hiring Source
h. Apprentice Progression Period or Percentage
i. Ethnicity/Gender
j. Labor hours for Reporting Period by Ethnicity/Gender
k. Total labor hours and number of apprentice employees for reporting period by ethnicity/gender.
l. Total apprentice labor hours and number of employees to-date.
m. Summary information as noted on the form.

The Contractor shall report the following information on journey level employees:

1. Labor hours for reporting period by ethnicity/gender, for each trade/craft.
2. Total journey level labor hours by ethnicity for each trade/craft.
3. Total labor hours and number of journey level employees for reporting period by ethnicity/gender.
4. Total journey level labor hours and number of employees to-date.
5. Summary information as noted on the reporting form.

The Contractor shall submit such other information as may be requested by the Owner to verify compliance with the apprentice utilization requirements of the Contract. The Owner reserves the right to add, delete change as necessary the information required by the Contractor on the Monthly EEO/Apprentice Utilization Report form.

1-07.11(7)F MONITORING (New Section) (9-6-02)

The Department of Executive Administration will verify the registration of each apprentice used on the Project with the Washington State Apprenticeship and Training Council.

The Department of Executive Administration will monitor the apprentice utilization data provided by the Contractor. In the event that the Contractor is deficient in the use of apprentices, the Department of Executive Administration and the Engineer will meet with the Contractor to discuss the reasons for the deficiency and help the Contractor develop a written plan for meeting the requirement.

The Owner will make routine visits to the Project Site for the purpose of confirming the use of apprentices.

1-07.15 TEMPORARY WATER POLLUTION, EROSION, AND SEDIMENTATION CONTROL

Delete this Section in its entirety and replace with the following:

In an effort to prevent, control, and stop water pollution and erosion within the project, thereby protecting the work, nearby land, streams, and other bodies of water, the Contractor shall perform all work in strict accordance with all Federal, Sate, and local laws and regulations governing water of the State, as well as permits acquired for the project. Temporary water pollution, erosion, and sedimentation control work shall comply as a minimum with the Construction Stormwater Control Technical Requirements Manual (based on SMC Chapter 22.800 Stormwater, Grading & Drainage Code).

The Contractor shall plan and coordinate the transition from temporary water pollution/erosion/sedimentation control work to the permanent landscaping, drainage, sedimentation, and erosion control work that may be specified in the Contract ensuring a continuous and uninterrupted water pollution/erosion/sedimentation control.

The Contractor is hereby notified that compliance with these requirements may necessitate performance of certain items of Work at a different time or in a different manner than has been considered normal construction practices in the past and that such revisions in scheduling of Work may interfere with said normal construction practices.

The Contractor shall, as a condition of the NPDES permit for this project, submit to the Engineer for review a Storm Water Pollution Prevention Plan (SWPPP) prepared in accordance with Volume 2, Chapter 3 of Ecology's most current Stormwater Management Manual and the requirements of Section 8-01.3(1) A. The SWPPP shall be compatible with permanent erosion control requirements and elements associated with the project landscape plans including, but not limited to, grading, tree and plant preservation soil preparation, irrigation, planting, and establishment.

The SWPPP shall be on-site and accessible at all times throughout the contract. All records of adjustments to the plans as well as weekly or precipitation event inspection reports shall be maintained on site as a component of the SWPPP. The Erosion and Sediment Control Lead (8-01.3(1)B) shall be responsible for inspections, record keeping, and plan amendment to document response to site conditions.

No clearing, grubbing or earthwork will be allowed until the SWPPP has been approved by the Engineer.

Temporary water pollution, erosion and sedimentation control, maintenance, and inspection shall be the Contractor's responsibility. Costs for temporary erosion control, temporary sedimentation control, and temporary water pollution control work shall be considered incidental to the Work and such costs shall be included in the bid item prices for the various bid items of Work listed in the Bid Form, unless there are bid items for specific measures included in the Bid Form.

The Engineer may notify the Contractor in writing, should they fail to adequately prevent water pollution/erosion/sedimentation as a result of construction activities, or fail to properly maintain the control measures. The Contractor shall implement corrective actions immediately or the Engineer may order the Work suspended. Corrective actions may include modifying the control measures, installing new measures, or modifying the offending work methods. If the Engineer orders the work suspended, work shall not be allowed to continue until the corrective actions are performed and approved by the Engineer. Any costs or delays as a result of the Work suspension order will be borne solely by the Contractor.

If the Engineer, under Section 1-08.6, orders the Work suspended for an extended time, the Contractor shall make, before the Engineer assumes maintenance responsibility, every effort to control erosion, pollution, sedimentation, and run-off during shutdown. Section 1-08.7 describes the Engineer's responsibility in such cases.

1-07.16 PROTECTION AND RESTORATION OF PROPERTY

1-07.16(2) TREES, SHRUB, AND PLANT MATERIAL PROTECTION

Supplement this Section with the following:

Tree protection measures shall be provided and maintained by the Contractor per this section and Standard Plan No. 133. Protection measures including but not limited to the following shall be in place and approved prior to the beginning of construction:

A. Temporary construction fencing shall be installed to identify the construction limits of the project and to restrict equipment operation and/or material storage from the "critical root zone" of trees to be retained unless otherwise approved by the Engineer. Approval for work activity within the critical root zone shall require protection methods to mitigate impact to soil, tree roots and/or tree canopy.

B. Surface protection measures shall be required for all areas within the construction limits and within the dripline of trees to be retained.

Pruning shall be limited only to the extent necessary to allow safe operation of equipment and/or prevent damage to trees. Pruning shall not occur to expedite construction and/or allow for the use of large equipment where alternative methods of construction are feasible as determined by the Engineer.

1-07.16(2)A SOIL AND ROOT PROTECTION (New Section)

Soil protection measures shall be installed, inspected, and approved by the Engineer prior to construction and shall be maintained by the Contractor until notified by the Engineer.

Soil surface protection consisting of a 4" minimum depth of wood chips or equal as approved by the Engineer shall be provided and maintained for all non-paved surfaces subject to construction impacts.

Soil structure protection consisting of a 4" minimum depth of wood chips and steel plates (or equal) shall be provided to prevent compaction for all unpaved areas subject to equipment operation or material storage.

1-07.16 (3) FENCES, MAILBOXES AND MISCELLANEOUS ITEMS

Delete last sentence in the third paragraph and replace with the following:

Existing mailbox stands shall be relocated temporarily, with approval of the Engineer, to their respective corners along NW 110th St. and to their permanent location as indicated in the Drawings. New mailbox clusters shall be in accordance with the detail indicated on the Drawings and with US Postal Service requirements.

1-07.18 INSURANCE

1-07.18(2) REQUIRED COVERAGES

Delete subitems g and h in item 1 "Commercial General Liability Insurance:" and replace with the following:

*g. Explosion, Collapse, or Underground (XCU)**
*h. Watercraft Liability – Owned and Non-owned**

*This coverage is only required when the Contractor's Work under this Contract includes exposures to which this coverage responds.

Delete the last paragraph from Item 3. Worker's Compensation.

1-07.18(6) EVIDENCE OF INSURANCE

Delete item 3.a. and replace with the following:

3. Comply with one of the following requirements regards naming The City of Seattle as an additional insured:

a. Insurance Services Office (ISO) Standard Endorsement forms: An additional insured endorsement must be issued on ISO form CG 20 10 11 85 or CG 20 26 and shall name "The City of Seattle, its officers, elected officials, employees, agents, and volunteers" (and any other entity or person specifically identified in the Project Manual) ("City of Seattle") as additional insureds. The endorsement shall

(1) Be signed by an authorized representative of the insurance company; and
(2) Include the policy number and name of the insured on the endorsement.

If the additional insured endorsement is issued on other than ISO form CG 20 10 11 85 or CG 20 26, or equivalent, it must specifically include the City of Seattle as an additional insured as respects Products and Completed Operations peril by attaching ISO form CG 20 37, or equivalent.

Revise item 3.b. to read as follows:

b. Non-ISO Endorsements: For Non-ISO endorsements any of the following options are acceptable so long as they specifically include the City of Seattle as an additional insured as respects Products and Completed Operations peril:

1-07.18(8) INDEMNIFICATION

Supplement this Section with the following:

The Contractor further waives, with respect to the Owner only, its immunity under RCW Title 51, Industrial Insurance, of the Revised Code of Washington.

1-07.23(1) CONSTRUCTION UNDER TRAFFIC (3-20-03)

Delete subitem f of item 4 and replace with the following:

*f. Coordinating construction operations with all disposal firms and transit bus service that may be operating within the Project Site. *If METRO operates in the area of Work, the Contractor shall maintain the Project Site in such a manner that transit bus service, including access to bus zones, is safe and convenient. Whenever it is necessary to modify METRO Transit Bus or Trolley Service (such as closure or temporary relocation of a bus stop or on-street bus staging area, removal of a bus shelter, closure of or detour of a bus route, construction in a roadway where bus transit is granted access and transit should be made aware, or requesting a temporary weekend only diesel bus for an electric trolley), the Contractor shall make the notification in accordance with Section 1-07.28, item 2. **

1-07.28 NOTIFICATIONS RELATIVE TO CONTRACTOR'S ACTIVITIES (3-20-03)

Delete items 2 and 11 and replace with the following:

***2. Disruptions to, or service modification requests for, METRO transit and Benson Line Waterfront Streetcar service and facilities**:

A. Contact 206-684-2732 or "construction.coord@metrokc.gov" for the following:
1. Short term closure or temporary relocation of a bus stop requires a minimum 5 Working Days advance notice;
2. Removal of bus shelter at bus stop requires a minimum 15 Working Days advance notice;

3. The request for assignment of diesel coaches for electric coaches on electric trolley routes (weekend only – no weekday diesel coach substitution) shall be made by no later than 10:00 AM on the Tuesday prior to the weekend requested.
4. Bus route road closure resulting in traffic detour requires a minimum 7 Working Days advance notice. If transit is to be granted access during this closure, this notification is still required.

B. Contact 206-263-6580 for overhead power wire requests as follows:
1). Overhead power line modification or outage requests for the Benson Line Waterfront Trolley require a minimum 15 Working Days advance notice.. See item 4) immediately following.
2). Overhead power line modification or outage requests for the electric bus require a minimum 10 Working Days advance notice. See item 4) immediately following.
3). Any construction or Equipment operating within 10 feet of any electric bus or Benson Line Waterfront Trolley overhead power line requires a 10 Working Day advance notice.
4). Requests for overhead power line modification or outage may have an associated cost payable by the requesting party and such requests may require additional information be provided. Scheduling is dependent upon King County METRO Transit Power Distribution's ability to accommodate such requests. The Contractor shall be prepared to accommodate such scheduling in the Work as required in Section 1-08.3(1).*

1-07.29 RESERVED (04-01-03)

Delete this Title and replace with the following new Title and Section:

***1-07.29 FIELD OFFICE FOR THE ENGINEER'S STAFF (New Section) (04-01-03) [2]**

The Contractor shall provide a field office on or adjacent to the Project Site for the use of the Engineer's staff within 5 Working Days from the Notice to Proceed Date. The field office, its location, and an alternate date if necessary, shall be subject to the approval of the Engineer and shall be established at the pre-construction meeting (see Section 1-08.1(2)). The field office shall meet the following requirements:

1. The field office shall be a weather-tight building, either portable or permanent structure a minimum of ten (10) feet wide with not less than 300 square feet of clear floor space, having at least one door, and a window area of not less than 45 square feet. Windows shall open to allow ventilation. Doors and windows shall be provided with bug screens. The interior walls shall be covered with material suitable for displaying Contract Drawings and progress charts, etc.
2. To deter break-in and theft, window and door glass shall be protected with heavy security screens on metal frames bolted to the walls and doors. All doors shall have 2 locks each: one doorknob keyhole lock and 1 deadbolt cylinder lock, each with its own distinct key. The Contractor shall provide 4 sets of keys for each lock.
3. The field office shall be level and, if portable, the structure shall be supported on blocks. If more than three (3) steps are required to enter the office, a floor-level landing of at least 12 square feet with railing shall be provided. Steps and landing shall be stable and slip resistant. A 3 sided boot brush ("Scrusher" by Chasburg Manufacturing Co. or approved equal) center mounted on a 2 foot x 2 inch x 8 inch board shall be provided at each field office entrance.
4. The Contractor shall be responsible for maintaining and cleaning the field office; repairing any damage to the structure, equipment and appurtenances; providing weekly janitorial services including supplying appropriate toilet room paper products; refilling applicable dispensers with drinking water cups; waterless hand cleaner with pumice, and paper towels; cleaning windows and sweeping floors; and emptying trash receptacles, disposing trash, and relining trash receptacles.

5. The office shall be furnished with the following furniture, equipment and appurtenances reasonably presentable, in good working order, and acceptable to the Engineer:

   a. Drafting table, 6 foot x 4 foot minimum, a "D size" plan drawer, soft pad covering entire top, locking tilt feature, and stool with back support (one set);
   b. Drafting table lamp, swing arm model with 3 foot minimum reach, clamp for attachment to drafting table, at least one 100 watt bulb (one);
   c. Executive chair, each with seat cushion, adjustable height seat, tilt back, arm rests, and floor wheels (two);
   d. Office desk, 30" x 60" minimum size, with at least 4 drawers which can be locked with key & one of which is set up for file folders, 2 sets of keys each desk (two);
   e. Office table 36" x 72" (two);
   f. Office chairs with seat & back cushion (four);
   g. Four (4) drawer legal file steel cabinet (one) w/75 legal size folders and hanging folders, metal frames for folders in each drawer, locking feature and 2 sets keys;
   h. Electric pencil sharpener (one);
   i. Metal trash receptacles with trash liner inserts and 25 extra trash liners (two each 41 quart size and 1 each 28 quart size);
   j. Photocopy machine, single or multiple tray frontload with 2 paper trays (8-1/2 x 11-inch and 8-1/2 x 14-inch), own understorage cabinet, floor wheels to accommodate service technician, preset reduction to 50% and enlarge to 200% and zoom in 1'% increments, bypass tray, at least 100 sheets each size 20 lb. white bright paper with no more than 30% post consumer recycle content, and a repair and maintenance service contract with 4 hour service response on-site parts and labor;
   l. FAX machine (plain paper);
   m. The Contractor shall provide a commercial grade broadband internet access (DSL at 640k, or ISDN when DSL is not available) between the field office and an Internet Service Provider (ISP). The Contractor shall provide for 24 hour technical support and a local or 1-800 phone number to troubleshoot and maintain the broadband connectivity. The Contractor shall provide inside wiring to support a Local Area Network inside the field office and shall include a 4-plex jack to at least 4 workstations (desk or table locations to be addressed at the pre-construction meeting per Section 1-08.1(2)). The Contractor shall provide necessary equipment to allow internet connectivity and shall be configured to allow VPN access from individual machines to the City of Seattle. The Contractor shall contact Seattle Information Technology at 206-684-8774 (206-684-4544 backup) at least 5 Working Days in advance for access to the Seattle internal network; and
   n. Seven (7) 20 foot (min. length) power cord with multiple plug-in surge protector for each of 4 computers with monitors, 1 printer, 1 FAX machine, and 1 spare.

6. Electric power of sufficient capacity to operate 4 computers with monitors, electric heater, air conditioner, typewriter, FAX machine, high speed internet, calculator, copier, and lights shall be provided and shall include a minimum of seven (7) duplex convenience electrical outlets. The office shall be illuminated at the tables and desks. An outdoor light fixture with a 150 watt bulb or approved equal shall be installed to effectively light the area around the office facility.

   After obtaining inspection and approval of the field office electrical system and the proposed temporary power connection hook-up from DCLU, the Contractor shall provide a minimum 15 Working Days advance to Seattle City Light requesting a temporary power drop and connection. At and north of Denny Way, contact 206-615-0600, and south of Denny Way contact 206-386-4200. Generators (gas and diesel) for producing electrical power will not be allowed unless the Engineer permits such in writing.

7. Contractor shall provide drinking water with disposable cup dispenser filled with cups; sanitary facilities within the office including a toilet and wash basin both with running water; a waterless hand cleaner dispenser filled with waterless hand cleaner with pumice; and a paper towel dispenser filled with paper towels.
8. The Contractor shall provide both local and long distance telephone service with four (4) separate phone lines (two for voice, one for internet access, and one for FAX); two (2) each single line "touch-tone" phones; "Centraflex" service with "call pickup, voice mail, and call

forwarding." Each installation shall include 25 foot long extension cord between phone jack and instrument to serve the desks and drafting tables.

9. The Contractor shall provide heating and air-conditioning of sufficient capacity to heat the office to 70° F within 1 hour, and to cool the office 15° F within 1 hour.

The field office shall be strictly for the use of the Engineer's staff.

If the Contractor fails to provide a field office at the location on the date agreed to at the pre-construction meeting, the Engineer will provide Written Notice of such and shall have the right to withhold progress payments in accordance with Section 1-09.9(3). If within 5 Working Days of the Engineer sending this Written Notice the Contractor has not provided the field office, then the Engineer will have the option to provide the field office. If the Engineer elects to provide the field office, the Engineer will give the Contractor a second Written Notice of such; will within three (3) Working Days of giving the second Written Notice provide the field office meeting the requirements specified in Section 1-07.29; and will charge the Contractor by deducting from monies due or to become due the Contractor on progress payments, all costs associated with the field office as specified in Section 1-07.29. Upon deliverance of the second Written Notice, the Contractor's right to provide the field office shall be forfeited.

The field office, equipment, and appurtenances supplied by the Contractor shall revert to and be removed by the Contractor when the Engineer, via the Written Notice of physical completion to the Contractor, establishes the Physical Completion Date. If the Contractor removes, closes, or discontinues the services specified in Section 1-07.29 prior to receiving the Written Notice of physical completion without first obtaining approval from the Engineer, the Contractor will be charged Liquidated Damages in accordance with Section 1-08.9.

All costs for the work required to provide the field office as specified in Section 1-07.29 and to procure all permits and licenses required for the field office, shall be included in the lump sum Contract Price Bid for "Mobilization." All costs for the work required to relocate the field office, if required, shall be considered incidental to the Bid item "Mobilization." *

1-07.31 RESERVED

Delete this Title and replace with the following new Title and Section:

1-07.31 SPILL PREVENTION, CONTROL & COUNTERMEASURES (New Section)

All pollution prevention work and spill cleanup, spill containment, and disposal of spilled material/waste shall be the Contractor's responsibility, including, but not limited to, testing, handling, and disposal as required by law for any spill waste generated through construction activities. The Contractor shall prepare a Spill Prevention, Control, and Countermeasures (SPCC) plan as part of the Storm Water Pollution Prevention Plan (SWPPP) as specified in Section 8-01.3(1)A.

1-07.31(1) SPCC PLAN REQUIREMENTS (New Section)

The SPCC plan shall identify construction-planning elements and recognize potential spill sources at the site. The plan shall outline responsive actions in the event of a spill or release and shall identify notification and reporting procedures. As a minimum, SPCC plan shall include the following:

1. A map indicating the layout of all materials, products, equipment storage areas, bulk and non-bulk chemical/petroleum storage areas, temporary waste storage areas/structures, spill kit(s), secondary containment units, and sanitary facilities for the workers.

2. Methods of managing stationary equipment and vehicles on-site, to prevent and contain any petroleum releases.

3. The name of the Contractor's personnel responsible for the coordination and implementation of the specified environmental requirements, and the emergency response sub-contractor's 24-hour/7-day phone number.

4. Spill Prevention and Emergency Cleanup Response plan, including but not limited to: notification procedures and procedures for spill containment, clean up, removal, hauling and off-site disposal of contaminated soil or water.

Applicable spill-related materials include, but are not limited to the following:

- Any hazardous materials, as defined in RCW 70.105.010 under "hazardous substances", that the Contractor stores, uses, or generates on the construction site during construction activities. These items include, but are not limited to, gasoline, oils and chemicals.
- Any contaminated soil, as defined in RCW 70.105.010, meaning soil containing hazardous substances as defined at concentrations exceeding Ecology's MTCA Method A cleanup criteria.
- Any contaminated water, as defined in RCW 70.105.010, meaning groundwater, surface water, run-on, run-off, or dewatering fluids containing hazardous substances at concentrations exceeding Ecology's MTCA Method A cleanup criteria.

1-07.31(2) POLLUTION CONTROL AND SPILL RESPONSE (New Section)

The Contractor shall respond immediately to any situation involving spills or the possibility of pollution. The Contractor shall make required notifications and take corrective action to eliminate or temporarily contain and clean up contaminants. The Contractor shall provide containers to store all contaminated wastes prior to disposal.

1-07.31(3) PREVENTION OF SPILL FROM HANDLING CHEMICAL AND PETROLEUM PRODUCTS (New Section)

The Contractor shall minimize potential spills by applying the following:

A. Storage

1. Storage of products shall be strictly controlled in an impervious diked area or containment shed. Any products actively being used for construction work shall be returned to storage afterwards or by the end of each shift.
2. Designate a chemical storage location in the staging area and identify the location in the Contractor's submitted SPCC plan.
3. Hazardous materials storage containers shall be OSHA-approved, and secure against spillage.
4. Provide lockable, positive shutoffs on any valve, pump, hose, or nozzle attached to any container.
5. Provide a clearly visible, weatherproof sign at entrance to storage with the following information:
   a. Full time phone number to contact SPU in the event of a spill or leak. SPU will furnish information to Contractor after contract award.
   b. Designate cleanup firm who will be available 24- hours and contacted in the event of a spill.

B. Spill Prevention and Cleanup

1. Products or waters contaminated as evidenced by sheens or rainbows shall not be allowed to contaminate ground surface or enter surface waters or surface drainage systems. Spills shall be contained and cleaned up immediately. Use of chemical emulsifiers, dispersants, coagulants, or other cleanup compounds for spills shall not be allowed.
2. Contaminated soil and vegetation from any product spill, including leaks from equipment, shall be immediately contained, removed/excavated, and properly stored in approved container(s). Contractor shall be responsible for disposal in accordance with all applicable laws and regulations and shall provide documentation of legal disposal to the Engineer.
3. Provide and maintain containment, recovery, cleanup, restoration, and disposal supplies and equipment at project site during construction.
4. Maintain, service, and make emergency repairs to equipment off-site, with procedures to prevent product spills and pollution. Take containment measures prior to all such work, i.e. use absorbent pads underneath all stationary vehicles and equipment.

a. Disconnecting, modifying, reconnecting, and testing of hydraulic and fuel lines shall not be allowed on project site unless for an emergency. In case of emergency repairs, all work shall be performed in a manner to prevent spill onto ground surface or nearby bodies of water. Containers and absorbent pads shall be immediately available and used for this work. Contractor shall monitor any such work to watch for leaks/spills.
b. Any piece of equipment having a gasoline or diesel engine, operating on project site, shall carry, as a minimum, one empty 5-gallon bucket with lid, 5 absorbent pads, two absorbent socks and a shovel.
c. Any fuel/lubrication truck operating on project site shall carry, as a minimum, one 20-gallon bucket with lid, 10 absorbent pads, 3- 5"x10' absorbent booms and a shovel.
d. No devices for dispensing petroleum products shall be allowed on project site.
e. Dumping condensation siphoned from petroleum/fuel tanks or flushing water from equipment or any product container shall not be permitted on project site.

5. If a spill occurs, the Contractor shall immediately implement the spill contingency/cleanup plan in accordance with the SPCC plan as approved by the Engineer.
6. Spills will be reported to SPU in accordance with the SPU Initial Spill Response And Reporting Procedures (See Appendix)

- For spills of 1 gallon or less, the Contractor will clean up the spill, complete a Spill Report Form, and submit it to the Engineer. The Engineer will forward the Report to the SPU Senior Spill Coordinator within 48 hours.
- For larger spills, the Contractor will initiate the spill cleanup and will immediately notify the Engineer. The Engineer will immediately notify OCC Dispatch (206-386-1800) and request that the duty Spill Coordinator be advised. The Engineer will complete a Spill Report and provide it to the Spill Coordinator.
- The SPU Spill Coordinator will respond to the scene to oversee the Contractor's cleanup activities and to mobilize SPU resources, if necessary.
- The contractor must immediately initiate spill cleanup actions and not delay action while awaiting the arrival of the Spill Coordinator.

C. Provide and maintain a central Spill Cleanup Kit at site when any work occurs. Locate kit(s) conveniently as designated in the approved SPCC plan. Notify all on-site workers of locations, and indicate locations on site map.

Central Spill Cleanup Kit shall contain the following items as a minimum:

1. Two shovels
2. Two 6-volt flashlights including extra batteries and bulbs
3. Two 55-gallon empty drums with lids
4. Two pairs of chemical-petroleum rated work gloves
5. Two pairs of chemical splash goggles
6. Two bales (100/bale) of oil absorbent pads
7. Eight 5"x10' oil absorbent booms with connectors at each end
8. Two 19"x100' oil absorbent sweeps
9. 15 plastic disposal bags
10. 50 All-purpose/chemical absorbent pads
11. Labels and markers for drum/container identification

D. Contaminated soil or surface water shall not be tracked from contaminated areas or spilled onto non-contaminated areas of the property and surrounding environment. Contractor shall comply with the SPCC plan provisions regarding equipment decontamination.

1-07.31(4) MATERIALS (New Section)

Oil Absorbing Materials shall be oloeophilic and hydrophobic, constructed of blown polypropylene fibrous material, 3M Brand Oil Sorbent as manufactured by Occupational Health and Safety Products Division/3M, St. Paul, Minnesota or approved equal. Materials shall have sufficient strength to allow them to be secured and remain in position for the applications required. The materials shall be reusable and shall not have any irritating or toxic effects on personnel. The Contractor shall supply oil-absorbing materials in the form of sheets, rolls, or pillows as required for effective control of spilled oil.

1-07.31(5) PAYMENT (New Section)

Costs for the Work required to prepare and implement the Spill Prevention, Control, and Countermeasures (SPCC) plan will be considered incidental to the Work and such costs shall be included in the lump sum Bid or the unit prices for the various items of Work listed in the Bid Form that comprise the Contract.

SECTION 1-08 PROSECUTION AND PROGRESS

1-08.1(2) PRECONSTRUCTION CONFERENCE

Supplement this Section with the following:

f. Stormwater Pollution Prevention Plan (SWPPP)

1-08.1(4) HOURS OF WORK

In the first paragraph, revise the first sentence to read as follows:

Except in case of emergency or unless otherwise approved by the Engineer, the normal hours of work shall be between **7:00 a.m** and 7:00 p.m. on any Working Day and shall consist of 8 hours exclusive of a lunch period not more than one hour.

Supplement this Section with the following:

Unless otherwise directed by the Engineer, no construction activities will be allowed on any portion of the Project during the holiday season from December 20, 2003 to January 4, 2004.

1-08.3(1) CRITICAL PATH SCHEDULE

Supplement the first paragraph with the following:

Within two weeks of submitting an initial schedule, the Contractor shall provide expenditure rate by quarter.

The electronic copy of the schedule shall be prepared using Microsoft Project 98 software. The Contractor may, at its option, provide the electronic copy of the schedule prepared using other software such as Primavera or SureTrak. If the electronic copy is prepared using software other than Microsoft Project 98, the software used shall be compatible with the Windows 2000 operating system. The Contractor shall also furnish to the Engineer two copies of the software used to prepare the schedule at no additional cost to the Owner. The software shall revert to the Contractor at the completion of the contract.

Supplement the third paragraph with the following:

4. Show relocation of water meters in the Critical Path Schedule. See Section 7-11.9(9)E Water Meter Relocation.

1-08.3(2) REQUIRED CONTRACTOR SUBMITTALS

Replace number 1 through 8 of the first paragraph with the following:

Required Contractor submittals include as necessary, but are not limited to, the following:

1. A method of removal and/or demolition plan and schedule,
2. Copies of permits required by the Contractor,
3. Traffic control plan, schedule, and safeguards to be used,
4. Materials catalog-cuts,
5. Sources of materials (Section 1-06.1),
6. Submittal Control Document (Section 1-05.3(2)B),
7. Critical Path Schedule (Section 1-08.3(1)),
8. Stormwater Pollution Prevention Control Plan (SWPPP) (including Site Access Plan) per Section 8-01.3(1)A.
9. Spill Prevention, Control & Countermeasures (SPCC) Plan.
10. Critical Design Elevations per Section 2-03 and Section 7-05.

1-08.4 NOTICE TO PROCEED AND PROSECUTION OF WORK

Supplement this Section with the following:

Work Execution Sequence & Restrictions

Avenues shall be constructed first. No more than two Avenues shall be under construction at a time. No two adjacent Avenues shall be constructed simultaneously. An Avenue will be considered complete when it is ready for landscaping work and all critical location and elevation data points verified by the Engineer. Ready for landscaping shall mean that all sidewalk, curb, driveway, pavement, soil, compost and mulch placement work is finished.

NW 107th St between 4th Ave NW & the eastern edge of 3rd Ave NW shall be constructed in the Summer of 2004 after school is let out.

Prior to the start of construction on each Avenue or Street, the Engineer will conduct a pre-construction walk through to highlight existing features that are to be protected or removed and to identify addresses where precast pavers are to be installed.

1-08.9 LIQUIDATED DAMAGES (04-01-03) [2]

Supplement this Section with the following:

*Liquidated Damages will be assessed in the amount of ninety dollars ($90.00) for each day after the day established for the complete set up of the field office for the Engineer's use, and for each day the field office is removed or closed prior to the Physical Completion Date (see Section 1-07.29). These monies will be deducted from payment(s) due the Contractor. No deduction or payment of Liquidated Damages will release the Contractor from the Contractor's obligation to provide the field office.

If the Engineer elects to provide the field office in accordance with Section 1-07.29, Liquidated Damage charges as specified in Section 1-08.9 will cease upon deliverance of the Written Notice to the Contractor.*

SECTION 1-10 TEMPORARY TRAFFIC CONTROL

1-10.1 GENERAL

Supplement this Section with the following:

7. Provide temporary traffic control around SPU crews while water meters are being relocated.

1-10.2(5)C TRAFFIC CONTROL RESTRICTIONS (10-16-00)

Supplement this Section with the following:

*The Traffic Control Plan shall be provided in accordance with the following street and lane closure restrictions:

3rd Avenue NW shall be opened to full width 7 AM to 9 AM and 4 PM to 6 PM Monday through Friday. It may be reduced to one lane of two way traffic with flaggers at all other times.

Greenwood Avenue N shall be open full width 6:00 AM to 9 :30 AM. and 4 PM to 6 PM Monday through Friday. It may be reduced to one lane southbound from 9:30 AM to 4:30 PM. It may be reduced to one lane northbound from 9:30 AM to 4:00 PM. Pedestrians shall be accommodated on the west side or assisted to the east side.

NW 107th St & Avenues (Phinney, Palatine, 1st, 2nd & 4th) May be closed to thru traffic. Maintain local access at all times unless approved otherwise by the Engineer. Closed roads shall be passable on evenings and weekends.
The Contractor shall maintain access for emergency vehicles at all times.
The Contractor shall coordinate mail service delivery, garbage and recycling pick up during project duration.

Unless otherwise directed by the Engineer, no construction activities will be allowed on any portion of the Project during the holiday season from December 20, 2003 to January 4, 2004. During this period the Contractor shall consolidate storage areas and prepare the site in a manner that allows the maximum number of parking spaces for residents.

1-10.4 MEASUREMENT

Delete the 2nd, 3rd and 4th paragraphs of this Section.

1-10.5 PAYMENT

Delete pay items 2. and 3. All costs for the work required for "Traffic Control Labor" and "Construction Signs Class A" on this project shall be considered incidental to the Bid Item "Maintenance and Protection of Traffic Control" and no separate payment will be made.

DIVISION 2

EARTHWORK

SECTION 2-01 CLEARING, GRUBBING AND ROADSIDE CLEANUP

2-01.3(1) CLEARING

Supplement the first paragraph with the following:

Clearing shall also include removal of shrubs and hedges (regardless of size), rockeries, fencing and gates, concrete sidewalk, steps and driveways, wood pads, wood walks and steps, concrete blocks, concrete walls, bollards, wood posts, landscape timbers, railroad ties, asphalt in ditches, concrete culvert and catch basin pipes, catch basins, sandboxes, junction boxes, inlet and catch basin grates, tree stumps, tree rounds from trees removed, removal of ivy growing on trees, relocation of traffic signs and mailboxes, and any other work marked as remove on each Removal and Protection Plan sheet unless a separate removal bid item is included in the Bid. The Contractor shall give the Engineer 48 hour advance notification prior to the start of clearing and grubbing on each Avenue or Street to allow the Engineer time to field mark features to be removed.

Supplement this Section with the following:

Trees and woody vegetation cleared on site may be chipped or shredded and stockpiled on site for use if materials conform with requirements of "Shredded Mulch" in Section 9-14.4(10). Cost for this work will be paid separately using the Bid Item "Shredded Mulch".

Payment for "Saw Asphalt Concrete", "Saw Cement Concrete", "Abandon and Fill Pipe", "Remove Tree" (greater than 6 inches in diameter), shall be made in accordance with Section 2-02.

Removal of asphalt pavement will be paid using the bid item "Common Excavation" or "Full Depth Pavement Recycling" as appropriate.

Payment for relocated or new wood fencing shall be in accordance with Section 8-12.

Removed rock facing may be reused on the project if materials conform with the requirements of Section 8-15.

2-01.3(5) PROTECTION OF EXISTING IMPROVEMENTS

Supplement this Section with the following:

Existing native trees identified as protected within the right-of way shall be protected by installing temporary high visibility fencing, on the construction side of vegetation to be protected, at a minimum distance equal to one-half the distance to the drip line away from the trunk, or as directed by the Engineer. Existing trees to be protected will be flagged by the Engineer prior to the start of construction on each Avenue or Street. All clearing and grubbing around native trees shall be selective, by hand methods only and as directed by the Engineer.
High visibility fencing shall be composed of a High Density Polyethylene material and shall be at least 4 feet high. Posts for fencing shall be placed every 5 to 10 feet on center or as directed by the Engineer to ensure rigidity. On long continuous runs exceeding 8 feet, a tension wire or rope shall be used as a top stringer to prevent sagging between posts.

Fencing material shall be free of any chemical treatment and meet the following requirements:

PROPERTY	VALUE	TEST METHOD
Tensile strength	360 lbs / ft	ASTM D4595
Color	High Visibility Orange	

The Contractor shall furnish a certificate or affidavit attesting that the fabric meets all the requirements stated above.

Upon completion of the project or when directed by the Engineer, the high visibility fence shall be removed in its entirety and disposed of by the Contractor.

2-01.4 MEASUREMENT

Supplement this Section with the following:

High visibility construction fencing will not be measured.

2-01.5 PAYMENT

Supplement this Section with the following:

All costs for the work required to furnish, install, maintain and remove the high visibility construction fencing shall be included in the lump sum price bid for "Clearing and Grubbing" and no separate payment will be made.

SECTION 2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

SECTION 2-02.3(2) REMOVAL OF BRIDGES, BOX CULVERTS AND OTHER DRAINAGE STRUCTURES

Supplement this Section with the following:

Backfilling of pipe removal areas shall use native soil backfill material unless otherwise specified by the Engineer. If the Engineer determines structural properties of native backfill material are inappropriate, Mineral Aggregate, Type 17 shall be used.

2-02.3(6) SAWING AND LINE DRILLING

Delete the last paragraph in this Section and replace with the following:

To thoroughly clean sawcuts the Contractor shall use high pressure water (water under at least 1400 psi.) to flush the cuts while simultaneously collecting the all wastewater using a wet-dry vacuum or similar method, or the wastewater may be pumped directly into drums for disposal. Disposal of waste liquid may be to soil or other porous surfaces away from storm drains and surface water ONLY if the Contractor collects and disposes of the remaining sediment after the water has filtered into the soil or evaporated. Impervious surfaces contaminated with sediment and grit from saw-cutting, planing or pulverizing operations shall be cleaned by sweepers to prevent contaminants from entering the storm drainage system or surface waters when it rains.

SECTION 2-03 ROADWAY EXCAVATION AND EMBANKMENT

2-03.3(19) CONSTRUCTION REQUIREMENTS OF CASCADE SWALES (New Section)

2-03.3(19)A DESCRIPTION (New Section)

Construction of the Cascade Swales shall be along NW107th and N107th Street (between 4th Ave NW and Phinney Ave N) and shall consist of common excavation; installation of weir walls, outlet structures, rock facing (modified and one foot high) and reinforced soil walls; mixing and placement of Bioretention Soil; placement of filter fabric, Engineered Soil, mineral aggregates and rock, finish grading, placement of jute matting, and mulching.

Filter fabric shall conform to the requirements of Section 2-12. And Material called out as 'FILTER FABRIC' shall meet the strength properties in Table 4 in Section 9-05.22(2) for moderate survivability and the requirements of 9-05.22(2) Table 5 class "C".

Aggregates shall conform to the requirements of Section 4-01.
Weir walls shall conform to the requirements of Section 7-05.
Soil mixes and mulch shall conform to the requirements of Section 8-02.
Rock shall conform to the requirements of Section 8-15.
Reinforced soil walls shall conform to the requirements of Section 2-03.3(19)C.

2-03.3(19)B CASCADE SWALE CONSTRUCTION AND GRADING (New Section)

Design elevations are critical to the overall functionality of the system. Finish grade of the bottom of the Cascade Swales shall be the Bottom Swale Elevation indicated on the Drawings unless otherwise directed by the Engineer. Finish grade of the top of the Cascade Swales shall be, at minimum, the Minimum Top Swale Elevation as shown on the Drawings unless otherwise directed by the Engineer. Maximum exposed vertical surface of rock placed on street side of swale is 1-foot.

Cascade Swale survey staking shall be conducted by the Contractor. SPU survey staff will set control hubs every 25-feet on street centerline with elevations per 1-05.5. A 3-dimensional terrain model of the project site is available in Autodesk Land Desktop 3 (LDT) for the Contractor's use. Swale survey data and Critical point data will be provided to the Contractor by SPU prior to the start of construction on each Street (see sample data located in the Appendix). These grade sheets will provide horizontal and vertical control for swale staking points and critical grading points. Finish grades at all the critical grading points, and other swale points as directed by Engineer, shall be reported to the Engineer. If design elevations are not met

within the tolerances specified in Section 1-05.5(2) the Engineer can require the Contractor to rework the soil in order meet design requirements, solely at the Contractor's expense.

The Contractor shall establish the number of survey points to clearly identify swale and berm bottom and top shape and elevations. After staking, the Contractor shall delineate swale shape with marking paint. The Engineer shall approve survey information and swale shape before excavation begins. Upon approval of paint markings, stakes shall be set to maintain limits of excavation as directed by the Engineer.

Grading within critical root zones of existing trees to be protected shall be under the direction of the Engineer. Trees shall be protected per 1-07.16(2) and 8-02.3(7). Should grading conflict with existing site conditions, consult with the Engineer prior to proceeding with the work.

High visibility construction fencing shall be placed as a temporary protection measure on the north side of the proposed Cascade Swales.

No heavy equipment shall be driven or parked within the swale perimeter during excavation, underdrain placement, backfilling, planting, or mulching of the facility.

Excavation of the final one-foot area of soil for Engineered Soil placement shall not occur when conditions are wet. If rain is predicted within 2-days of date Contractor anticipates performing native soil excavation of the future Engineered Soil area, Contractor shall cover soil area with clear plastic sheeting such that precipitation falling on the area is directed away from the bottom swale area to prevent area from becoming saturated. Excavation shall not be permitted if soil area is saturated or has been subjected to water within 48-hours prior to excavation.

A maximum of 3 days is allowed between soil excavation and start of soil wrap wall or modified rock facing construction.

No materials or substances shall be mixed or dumped within the swale area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

Any existing private drainpipe currently discharging into the right-of-way area shall be cut and reconnected to new swale. If the existing private drainpipe intercepts a new swale at or below the Bottom Swale Elevation, or at or below structure outlet elevation, the private drainpipe shall be piped to a downstream swale or structure. A perforated cap shall be placed on the end of the drainpipe to block entrance of animals. PSE shall relocate gas lines in conflict with proposed culvert and swale elevations prior to contractor work in those locations. Contractor shall pothole for gas line locations as requested by Engineer in accordance with Section 7-17.3(5).

The Contractor shall store excavated soils in the quantity necessary for providing the Bioretention Soil. Native soil selected for use in Bioretention Soil shall be approved by Engineer. Onsite soil fill shall not include large woody debris or refuse (garbage, old sewer/drainage pipe, concrete & asphalt chunks, sod or the like). This soil shall be amended per Section 9-14.1(6) Bioretention Soil, prior to placement back into the swale side slopes as indicated on the Drawings.

After rough grading to the adjusted Bottom Swale Elevation (15-inches below finish Bottom Swale Elevation), and prior to placement of Engineered Soil in each Cascade Swale, the Contractor shall collect a native soil sample. The native soil sample shall be placed into clean 5 gallon bucket. The sample shall be representative of soil located within the bottom of the swale, and include a minimum of 3 collection sites within the bottom of the swale. The Contractor shall label the bucket with the number of the swale and provide the Engineer with the soil sample. The Engineer will transfer sample to SPU's Materials Laboratory for analysis. Soil analysis data will be used for future system performance evaluation.

At swale bottom area, Engineered Soil shall be placed in lifts not exceeding 6-inches to a total compacted depth of minimum 1-foot. Engineered Soil shall not be placed when the ground or soil is frozen, excessively wet or, in the opinion of the Engineer, in a condition detrimental to the work. The Contractor shall compact the Engineered Soil by proof rolling with hand held equipment approved by the Engineer. After all fill material has been placed and compacted, the Contractor shall grade the Cascade swale bottom areas to finished grade minus 3-inches; Contractor shall provide a minimum of 3 check elevation points within each swale for approval by Engineer prior to placement of Mineral Aggregate Type 4. After elevation approval by Engineer, place 3-inch depth of Mineral Aggregate Type 4 to bring the Bottom Swale Elevation to finished grade.

Finished elevation shall be graded 0.5 to 1 inch below walks, curbs, pavements and driveways, unless adjacent to a bermed area.

Soil used for bermed areas shall be Bioretention Soil. Fill material shall be placed in lifts not exceeding 6 inches. All lifts below top 1 foot from finish grade shall be compacted to 95% maximum density, as determined by the compaction control test specified in Section 2-03.3(14)E. Bioretention Soil shall not be placed when the ground or soil is frozen, excessively wet or, in the opinion of the Engineer, in a condition detrimental to the work. After all fill material has been placed and compacted, and prior to installation of jute matting or mulch, the Contractor shall provide a minimum of 3 check elevation points along each berm for approval by Engineer prior to placement of shredded mulch. If elevations are not met, the Contractor, at their own expense, will be required to add Bioretention Soil to the earth berms to bring them up to grade. After grading approval by the Engineer, berm soil areas shall be dressed with 3 inches minimum of shredded mulch, and jute matting and burlap in places identified in details having slopes greater than or equal to 2.5:1.

The soil slopes shall be graded in a uniform manner per Standard Plan No. 140 or as directed by the Engineer. Rounding shall be done at abrupt changes in surfaces. Feather grades gradually to meet existing contours. Minor adjustments to the swale grading and contouring shown in the Drawings are anticipated to meet site conditions and to provide for the intent of grading. Hand grading and final refinement of swale bottom, Bioretention Soil areas shall be as directed by the Engineer. The Engineer shall have final approval of all grading and contouring.

Upon completion of finish grading work, all excess Material shall be removed from the Project Site and disposed of.

2-03.3(19)C REINFORCED SOIL WALL (New Section)

Reinforced soil wall survey staking shall be provided by the Contractor as part of Cascade Swale staking (see Section 2-03.3(19)B). The Contractor is responsible for checking finished grade elevations as necessary to ensure top of wall design elevations are met. A minimum of three elevations for top of wall shall be submitted for each section of wall contained within a swale and the elevations and approximate locations shall be reported to the Engineer for verification and approval. If Minimum top swale design elevations are not met within the tolerance specified in Section 1-05.5(2), the Engineer can require the walls to be removed and rebuilt at the Contractor's expense. Finish grading will not be approved by the Engineer until top of wall elevations are surveyed and reported to the Engineer.

Construction of the reinforced soil walls shall begin within 3 days after cut slope excavation begins. The reinforced soil walls shall be constructed as indicated on the Drawings and per the soil wall wrap materials manufacturer's guidelines. Reinforced soil wrap materials shall consist of Biaxial Geogrid per Section 9-14.5(4) over Erosion Control Blanket per Section 9-14.5(5). The biaxial geogrid material and erosion control blanket shall be taut and the curves in the wall shall be smooth.

Forming curved or radius walls shall meet manufacturers' recommendations and may include:
A) for gentle or long radius curves, wall wrap materials may be cut to within 6-inches minimum of the wall face; B) for tight or short radius curves, short lengths of wall wrap materials may be laid out in a series of tangents along the wall face radius, with wrap materials overlapped a minimum of 1'-0" at the wall face.

Wall face slope transitions from 4V:1H to other slopes show on plans, or slopes need to match adjacent swale edge slopes, may be executed in one of the following two methods. Option one is to build 4V:1H soil wrap walls and bury portions of the walls to achieve desired slope on adjacent swale edge. Option two is to step back subsequent soil wrap wall steps to achieve the desired slope.

In areas where Contractor is concerned that soil wrap wall construction would jeopardize integrity of protected tree or shrub vegetation, Contractor shall notify Engineer. The Engineer, when appropriate, shall redirect soil wrap wall and bottom swale boundaries.

Soil used for reinforced soil wall construction shall be Biorentention Soil. Bioretention Soil shall be placed in lifts not exceeding one-foot. The front 1-foot face shall be compacted by hand methods to achieve approximately 85% maximum density. Soil placed behind the front 1-foot face shall be compacted to 95% maximum density, as determined by the compaction control test specified in Section 2-03.3(14)E.

Bioretention soil used in reinforced soil walls shall not be placed when the ground or soil is frozen, excessively wet or, in the opinion of the Engineer, in a condition detrimental to the work.

2-03.3(20) CONSTRUCTION REQUIREMENTS OF BIORETENTION SWALE AND ENGINEERED SWALE (New Section)

2-03.3(20)A DESCRIPTION (New Section)

Construction of the Bioretention and Engineered Swales shall be along Avenues (Phinney, Palatine, 1st & 2nd) and shall consist of common excavation; placement of weir logs, swale liners and earth berms; placement of Engineered Soil or Bioretention Soil, mineral aggregates, finish grading, placement of streambed cobbles, jute matting, and mulching.

Filter fabric shall conform to the requirements of Section 2-12.
Aggregates shall conform to the requirements of Section 4-01.
Log weirs shall conform to the requirements of Section 7-05.3(2).
Soil mixes and mulch shall conform to the requirements of Section 8-02.
Rock shall conform to the requirements of Section 8-15.

2-03.3(20)B BIORETENTION AND ENGINEERED SWALE GRADING (New Section)

Finish grade of the bottom of the Engineered and Bioretention Swales shall be the Bottom Swale Elevation as indicated on the Drawings unless directed otherwise by the Engineer. Finish grade at any point around the Engineered or Bioretention Swale's top of swale shall be, at minimum, the Minimum Top Swale Elevation as shown on the Drawings and/or as required by staking in the field, and/or as directed by the Engineer. Maximum exposed vertical surface of rock placed on street side of swale is 1-foot.

Engineered and Bioretention Swale survey staking shall be conducted by the Contractor. SPU survey staff will set control hubs every 25-feet on street centerline with elevations. A 3-dimensional terrain model of the project site available in Autodesk Land Desktop 3 (LDT) and the Contractor shall use model to determine pertinent survey information. Swale survey data and Critical point data will be provided to the Contractor by SPU prior to the start of construction of each Avenue or Street (See sample data in Appendix). These grade sheets will provide horizontal and vertical control for swale staking points and critical grading points. Finish grades at all the critical grading points, and other swale points as directed by Engineer, shall be reported to the Engineer. If design elevations are not met within the tolerances specified in Section 1-05.5(2) the Engineer can require the Contractor to rework the soil to meet the design requirements, solely at the Contractor's expense.

The Contractor shall establish the number of survey points to clearly identify swale and berm bottom and top shape and elevations. After staking, the Contractor shall delineate swale shape with marking paint. The Engineer shall approve survey information and swale shape before excavation begins. Upon approval of paint markings, stakes shall be set to maintain limits of excavation as directed by the Engineer.

When changing grade at power pole location to fill more than 10" from the existing ground line, notify City Lights Bill Caldwell 206-615-0625, 10 days prior to filling at pole so City Light can treat wood surface.

Grading within root zones of existing trees to be protected shall be under the direction of the engineer. Trees shall be protected per 1-07.16(2) and 8-02.3(7). Should grading conflict with existing site conditions, consult with the Engineer prior to proceeding with the work.

No heavy equipment shall operate within the swale perimeter during excavation, subsurface pipe placement, backfilling, tree pit preperation, or mulching of the facility.

If rain is predicted within 2-days of date the Contractor anticipates performing native soil excavation, the Contractor shall cover soil area with clear plastic sheeting to prevent area from becoming saturated. Excavation shall not be permitted if soil area is saturated or has been subjected to water within 48-hours prior to excavation.

No materials or substances shall be mixed or dumped within the swale area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations.

Any existing private drainpipe currently discharging into the right-of-way area shall be cut and reconnected to a new swale. If the existing private drainpipe intercepts a new swale at or below the Bottom Swale Elevation, or at or below structure outlet elevation, the private drainpipe shall be piped to a downstream swale or structure. A perforated cap shall be placed on the end of the drainpipe to block entrance of animals. PSE shall relocate gas lines in conflict with proposed culvert and swale elevations prior to contractor work in those locations. Contractor shall pothole for gas line locations as requested by Engineer in accordance with Section 7-17.3(5).

The Contractor shall store excavated soils in the quantity necessary for providing the Bioretention Soil. Native soil selected for use in the Bioretention soil shall be approved by the Engineer. Onsite soil fill shall not include large woody debris or refuse (garbage, old sewer/drainage pipe, concrete & asphalt chunks, sod or the like). The Contractor is responsible to keep native soil to be used for Bioretention Soil dry; this may include placing clear plastic sheeting on the soil storage area. This soil shall be amended per Section 9-14.1(6), Bioretention Soil Mix, prior to placement back into the swales.

Prior to placement of Bioretention Soil and Engineered Soil in each vegetated swale, the Contractor shall notify the Engineer to inspect and take a photograph of the swale. If utility crossing through swale area or gravel layer or loose soil layer is observed, the Engineer shall have Contractor provide infiltration barrier. If situation is questionable, the Engineer will confirm need for soil barrier with Jeff Fowler, SPU Geotechnical Engineer (206-233-2540). If the Engineer determines a swale liner is necessary, the Contractor shall place a clay liner. Clay liner shall be constructed by thoroughly mixing bentonite clay into native soil for a minimum depth of 6-inches or as directed by the Engineer. The contractor shall also collect a one-gallon sample of native soil from bottom of swale. The sample shall be representative of soil located within the bottom of the swale, and include a minimum of 3 collection sites within the bottom of the swale. The Contractor shall label the soil bag with the number of the swale and provide the Engineer with the soil sample. The Engineer will transfer sample to SPU's Materials Laboratory for future analysis. Soil analysis data will be used for future system performance evaluation.

Channels, as identified on the Palatine Avenue plan, are bermed areas within the water's flow path between two swales. Channels shall be rock lined. Bottom channel elevations shall meet the same elevation tolerance as identified for bottom swale elevations.

Soil used for any bermed areas shall be Bioretention Soil. Fill material shall be placed in lifts not exceeding 6 inches. All lifts below the top one-foot of finished grade shall be compacted to 95% maximum density, as determined by the compaction control test specified in Section 2-03.3(14)E. Top one-foot of finished grade shall be compacted to approximately 85% maximum density by proof rolling with hand held device approved by the Engineer. Soil shall not be placed when the ground or soil is frozen, excessively wet or, in the opinion of the Engineer, in a condition detrimental to the work. After all fill material has been placed and compacted, and prior to installation of jute matting or mulch, the Contractor shall submit a minimum of 3 check elevation points along each berm for approval by the Engineer prior to placement of shredded mulch. Elevation of soil at the top berm width shall be equal to the minimum top swale elevation minus 0.2-feet. If finish elevations are not met, the Contractor, at their own expense, will be required to add Bioretention Soil to the earth berms to bring them up to grade. After grading is approved by the Engineer, soil areas shall be dressed with 3 inches minimum of shredded mulch, jute matting and burlap in places identified in details having slopes greater than or equal to 2.5:1. Berms shall have a slope of 2:1 unless specified in the drainage plans.

When the top surface of culvert pipes are within 6-inches of finished grade within vegetated area, Contractor shall berm soil over culvert pipe such that there is a minimum of 6-inch depth of Bioretention Soil over the pipe.

Soil used for the 2-feet shoulder strip, adjacent the road, shall be Engineered Soil and it shall be compacted between 90% to 95% of its maximum dry density per ASTM D698.

Bioretention Soil and Engineered Soil shall be placed in lifts not exceeding 12-inches. Soil shall not be placed when the ground or soil is frozen, excessively wet or, in the opinion of the Engineer, in a condition detrimental to the work. The Contractor shall compact the soil by proof rolling with a hand held device approved by the Engineer. After all fill material has been placed, the Contractor shall grade the vegetated swale bottom areas to finished grade minus 3-inches. Finished grades are the elevations indicated on the Drawings, Critical point data provided by the Engineer, and data provided in LDT file. Contractor shall provide a minimum of 3 check

elevation points within each swale prior to placement of compost or mulch. After grading is approved by the Engineer, areas shall be dressed with 3-inches minimum of Composted Material.

Finished elevation shall be graded 0.5 to 1 inch below walks, curbs, pavements and driveways, unless adjacent to a bermed area.

Berm areas shall be graded in a uniform manner following the Detail Plans, or as set by the Engineer. Rounding shall be done at abrupt changes in surfaces as per Standard Plan # 140. Feather grades gradually to meet existing contours. Minor adjustments to the swale grading and contouring shown in the Drawings are anticipated to meet site conditions and to provide for the intent of grading. Hand grading and final refinement of swale bottom and Engineered and Bioretention Soil areas shall be as directed by the Engineer. The Engineer shall have final approval of all grading and contouring.

Contractor shall vegetate the 2-feet shoulder strip following finish grading of the swales or as directed by the Engineer. Vegetation shall be grass or ground cover, as directed by the Engineer.

Relocation and/or adjustments of water meters shall be done as specified in Section 7-11.3(9)C Water Service Connections.

2-03.3(21) CONSTRUCTION REQUIREMENTS OF CONVEYANCE SWALES (New Section)

Conveyance swale areas shall be graded to achieve 1% minimum slope to downstream conveyance system. After grading, native soil shall be amended in accordance with the requirements of Section 8-02.3(27) Planting Area Preparation. Soil amending shall not occur when soils are saturated. If working during a rainy period, soils shall be covered with clear plastic sheeting for 3 days prior to soil work.

2-03.4 MEASUREMENT

Supplement this Section with the following:

Measurement for "Reinforced Soil Wall" will be by the square foot installed measured on the vertical face.

No measurement for finish grading will be made.

Soil sample collection and bentonite clay incorporation into native soil will not be measured.

2-03.5 PAYMENT

Supplement item 9. with the following:

(9) Other Payment Information

Payment for Earth Berm construction shall be made using the bid items "Common Excavation", "Composted Material" and "Embankment Compaction".

No separate payment will be made for finish grading work required to hand grade earth berms, earth ridges, Cascade Swales, Bioretention Soil Swales, Engineered Soil Swales and Conveyance Swales to final shape as specified.

No separate payment will be made for furnishing and incorporating bentonite clay into native soil.

No separate payment will be made for reconnection of private drain pipes.

Contours shown on the Drawings are for general information and bidding purposes only. All pertinent information for bidding is provided on the Drawings, and quantity estimates were calculated off of proposed final contours. Excavation quantities were determined using 3-D terrain models. Construction elevations will be provided to the Contractor prior to the start of work at each street or avenue.

Supplement this Section with the following:

(10) "Reinforced Soil Wall", per square foot.

The bid item price for "Reinforced Soil Wall" shall include the costs for the work required to construct reinforced soil walls as specified and as indicated on the Drawings, including but not limited to placing and compacting Bioretention Soil backfill, the Biaxial Geogrid and the Erosion Control Blanket.

Excavation required for the reinforced soil wall construction will be paid as "Common Excavation".
"Composted Material" used to amend native soil will be paid separately in accordance with Section 8-02.
Embankment compaction of Bioretention Soil used in the soil walls will not be measured.
Placement of "Shredded Mulch" on the top of walls will be paid separately in accordance with Section 8-02.

SECTION 2-08 ROCK FACING

2-08.3(1)A GENERAL

Delete the first sentence and replace with the following paragraph:

'ROCK FACING' for this project shall be constructed in accordance with Standard Plan #141, with the following exceptions:

There will not be any 6" perforated PVC subsurface drainpipe.

The "Existing or Proposed Grade" shown is considered to be the top of undisturbed native soil in the bottom of swale. The "Depth of Base" (d) is the embedment depth of the rock in undisturbed native soil.

The "Slope Line of Rock Facing" shown shall be as shown, unless otherwise noted.

Where it shows 'ROCK FACING MODIFIED' on the Drawings it shall be constructed according to the detail indicated on the Drawings.

Material called out as 'FILTER FABRIC' shall meet the strength properties in Section 9-05.22(2) Table 4, for moderate survivability and the requirements of 9-05.22(2) Table 5 class "C".

2-08.3(1)C ROCK SELECTION

Add the following sentence to this Section:

If Rock Facing is being placed adjacent to an existing rockery wall, the rock type shall match the rock type of the adjacent rockery wall to the extent feasible.

2-08.4 MEASUREMENT

Supplement this Section with the following:

Measurement for "Rock Facing, Modified" will be by the square foot.
Measurement for "Rock Facing, One Foot High" will be by the linear foot.

2-08.5 PAYMENT

Supplement this Section with the following:

(5) "Rock Facing, Modified", per square foot

The bid item price for "Rock Facing, Modified" shall include all costs for the work required to furnish and place the rock as indicated on the Drawings.

Excavation will be paid separately in accordance with Section 2-03.
Filter fabric will be paid separately in accordance with Section 2-12.
Quarry spalls will be paid separately in accordance with Section 8-15.
Placement of Bioretention soil will be paid separately using the Bid Items "Common Excavation" and "Composted Material".

(6) "Rock Facing, One Foot High", per linear foot.

The bid item price for "Rock Facing, One Foot High" shall include all costs for the work required to furnish and place the rock facing on the street side of the Cascade Swales as indicated on the Drawings.

SECTION 2-09 STRUCTURE EXCAVATION

2-09.5 PAYMENT

Delete this Section in its entirety and replace with the following:

Structural excavation will not be measured or paid on this project. All excavation unless otherwise specified will be paid as "Common Excavation".

SECTION 2-12 CONSTRUCTION GEOTEXTILE

2-12.5 PAYMENT

Supplement this Section with the following:

(8) "Filter Fabric", per square yard.

The bid item price for "Filter Fabric" shall include all costs for the work required to furnish and install filter fabric as specified and as indicated on the Drawings.

DIVISION 4

BASES

SECTION 4-01 MINERAL AGGREGATES

4-01.2 MATERIALS

Supplement this Section with the following:

At Contractor option, recycled glass may be blended with aggregates used for shoulder ballast. Recycled glass aggregate shall conform to the requirements of Section 9-03.20.

SECTION 4-05 FULL DEPTH ASPHALT PAVEMENT RECYCLING

4-05.1 DESCRIPTION

Delete this Section in its entirety and replace with the following:

The work in the Section shall consist of recycling asphalt pavement by pulverizing, mixing and compacting the existing full depth asphalt pavement and four inches of the underlying base material to achieve a uniformly mixed base course suitable for a final wearing surface of asphalt concrete.

Stockpiling of blended asphalt and base material is anticipated prior to final placement.

Mineral aggregate, Type 2 may be added to areas using recycled pavement to achieve final grade for the base material.

Grading:
The Contractor shall pulverize the existing pavement/base mixture until it meets the gradation requirements listed for Mineral Aggregate Type 2 , Section 9-03.16 of the Standard Specifications. The Contractor may add imported mineral aggregate to the pulverized pavement/base mixture until it meets the Type 2 specification. The Engineer will sample the material for testing and approval prior to the start of paving.

Compaction:
The Contractor shall compact the pulverized mixture until it meets 95% of ASTM D-698. If the Engineer determines that D-698 can not be achieved, the Contractor shall compact the existing base until the density reading does not increase by more than 1% after two consecutive passes using a 10 ton (minimum) vibratory roller.

Mixing:
The Contractor shall thoroughly mix all recycled pavement/base and any imported mineral aggregate to achieve a uniform appearance. The Contractor shall control moisture to within 3% of optimum moisture as determined by ASTM D-698 before compaction.

4-05.3(2)B PULVERIZATION

Revise the first sentence to read as follows:

The existing pavement and base material shall be pulverized to a depth of ***4 inches*** .....

4-05.3(2)C ADDITIVES, MIXING AND COMPACTING

Delete the first, second, third and fourth paragraphs in this Section.

4-05.3(2)D FINAL SURFACE PREPARATION

Delete this Section in its entirety.

4-05.5 PAYMENT

Delete the description of pay item 2. and replace with the following:

The bid item price for "Full Depth Pavement Recycling" shall include all costs for the work required to pulverize the existing asphalt to the depth specified and to the limits indicated on the Drawings; to stockpile as necessary; to grade, shape and compact. The application of water as necessary, will be considered incidental to this Bid Item and no separate payment will be made.

Mineral aggregate, Type 2 will be paid separately in accordance with Section 4-01.

DIVISION 7

STORM DRAIN, CULVERTS, SANITARY AND COMBINED SEWERS, WATER MAINS AND RELATED STRUCTURES

SECTION 7-01 DRAINS

7-01.3(4) CAST-IN-PLACE TRENCH DRAINS (New Section)

Trench drains indicated on the Drawings shall be cast-in-place trench drains by ABT, Inc. TF-14 "Trench Drain Forming System" or approved equal. Trench drains shall have an inside width of 12 inches. They shall be formed from pre-engineered and factory fabricated expanded polystyrene foam forming system or other acceptable method as approved. Foam form shall be hot wire cut to shape to maintain smooth trench finish and to provide a means for easy removal of foam after casting. It shall also have a water base release agent applied prior to installation. Grates shall have retaining pins on all four corners. Cast-in-place trench drain shall have a radius bottom and built to a slope as shown on the plans or as directed by the Engineer. The cast-in-place forms shall be capable of maintaining proper alignment during the concrete placement. Concrete shall not be poured onto the forms until inspected and approved by the Engineer. Assembly of the cast-in-place trench drains TF-14 shall be done in accordance with the manufacturer's recommendations. Cold pour joints are not allowed. Disposal of drain foams shall be done off site.

Cast-in-place trench drain rails shall be ASTM A 36 structural steel post fabrication galvanized per ASTM A 123-89a with a minimum cross section of 1 3/4 in. x 1 3/4 in. x 3/16 in. including concrete anchors at 11 in. centers. Grates shall be cast iron in accordance with ASTM A-48 class 35 cast iron and shall have a minimum of 22% open space of total top surface area or as directed by the Engineer. They shall conform to H20 load and be ADA approved. Cast-in-place trench drain grates shall be held in place with an appropriate locking mechanism with minimum obstructing the flow area of the trench.

7-01.4 MEASUREMENT

Supplement this Section with the following:

Measurement for "Trench Drain" will be by the linear foot.

7-01.5 PAYMENT

Supplement this Section with the following:

(6) "Trench Drain" per linear foot.

The bid item price for "Trench Drain" shall include all costs for the work required to furnish and install the trench drain as specified and as indicated on the Drawings.

SECTION 7-02 CULVERTS

7-02.3(1) PLACING CULVERT PIPE

7-02.3(1)A GENERAL

Supplement this Section with the following:

Bedding for 10" and 12" DIP culvert pipe crossing under roadway areas with less than 2-feet of cover shall be Class C modified so that dimension A shown on Std Plan No 285, shall be 6-inches. Bedding for D.I. culvert pipe crossing under driveway and walkway crossings shall be Class D.

Bedding for 18" DIP culvert pipe shall be Class D.

7-02.3(2)A JUNCTION BOX 277, MODIFIED (New Section)

Where Junction Box 277, MOD, is indicated on the Drawings, the Contractor shall install the structure according to the details shown on Drawing Sheet 56.

7-02.5 PAYMENT

Supplement this Section with the following:

(5) "Debris Barrier For 18 In Culvert Pipe", per each.

The bid item price for "Debris Barrier For 18 In Culvert Pipe" shall include all costs for the work required to furnish and install the debris barrier as indicated on the Drawings. Filter fabric and quarry spalls will be paid separately.

SECTION 7-05 MANHOLES, CATCH BASINS, AND INLETS

7-05.3(1)V MANHOLE TYPE 201 MODIFIED (New Section)

Where 'MH Type 201 MOD' is indicated on the Drawings, the construction shall follow the Standard Plan #201 with the following exceptions:

A channel and shelf shall not be grouted in the bottom of the manhole. The specified sump shall be provided by leaving the inside bottom of the manhole vacant, to the depth specified in the plans (typically 4 feet).

7-05.3(2) CATCH BASINS AND INLETS

7-05.3(2)G CATCH BASIN, TYPE 241, MODIFIED (New Section)

Where CB Type 241, MOD, is indicated on the Drawings, the Contractor shall install the catch basin according to the details shown on Drawing Sheet 56.

7-05.3(2)H CATCH BASIN, TYPE 240, MODIFIED (New Section)

Where CB Type 240, MOD, is indicated on the Drawings, the Contractor shall install the catch basin with a four foot sump.

7-05.3(3) WEIRS AND OUTLET STRUCTURES (New Section)

7-05.3(3)A WEIR WALL STRUCTURE (New Section)

Weir wall structures shall be as indicated on Drawings and shall conform to the requirements specified in Section 5-05.3(23)C (of the Standard Specifications) for curb wall. Weir walls shall be integrally colored cast in place concrete. Submit pigment manufacturer's color chart for color selection. Color will be in the Standard color group of Davis color or an approved equal. Concrete color shall be incorporated per manufacturer's recommendations.

Weir wall Top Elevation and Notch elevations shall meet structure tolerances specified in Section 1-05.5(2).

Material called out as 'FILTER FABRIC' shall meet the strength properties in Table 4 in Section 9-05.22(2) for moderate survivability and the requirements of 9-05.22(2) Table 5 class "C".

7-05.3(3)B FLOW MONITORING WEIRS (New Section)

Contractor shall install one (1) flow monitoring weir as described in this section and as directed by the Engineer. Flow monitoring location has changed from the location shown on the plans (sheet 19) to Weir Wall #19 (Sheet 13). The concrete notch at weir wall #19 shall be modified per detail provided to the Contractor at the prior to the start of construction at NW 107thstreet.

Contractor shall have a flow monitoring weir fabricated from stainless steel. The weir will be a rectangular plate with V-notched weir and bolt holes sufficient to attach to a concrete weir wall. The Engineer will provide a fabrication detail to the Contractor prior to the start of construction at NW 107th Street.

The weir plate shall be mounted on the upstream end of Weir Wall #19. Locate weir plate such that the bottom of the V is located in the 6 o'clock position.

The Contractor shall supply all fasteners and other mounting hardware required for a complete installation.

7-05.3(3)C LOG WEIRS (New Section)

Log weirs shall be constructed of Recycled plastic landscaping timbers with a minimum dimension of 4"x12". Length shall be 10-feet unless otherwise shown on plans. Color shall be redwood or sandstone brown. Recycled plastic timbers shall have 1" diameter hole drilled 1.5' from the end of timbers. Recycled plastic landscape timber shall be placed as such that a minimum of 2-feet is embedded into the side slope of the swales, and top of log is within 0.5" accuracy of design elevation. 1-foot minimum width of soil under weir shall be amended with bentonite clay. Minimum depth of log embedment below swale finish grade is 3". Number 6 rebar shall be placed through the drilled holes and embedded a minimum of 2.5-feet.

Material source for recycled plastic landscaping timbers is American Ecoboard or approved equal. Material suppliers include Schrader Co, (425) 377-1550.

7-05.3(2)D OUTLET STRUCTURE (New Section)

Outlet Structures shall be 54 inch diameter concrete structures having a 4 foot sump and fitted with a beehive grate as indicated on Drawing Sheet 52.

Design elevations for the overflow elevation shall meet tolerances for structures specified in Section 1-05.5(2).

Ladders shall conform with Standard Plan No. 232. Ladders shall be located on the south side of the manhole.

The exposed face of all concrete manhole structures shall be sand blasted and stained a medium gray color. The Engineer shall approve the concrete stain color prior to application. Concrete stain shall be applied per manufacturer's recommendations.

Beehive grates shall have maintenance access hatches. Contractor shall provide pad locks of adequate shackle dimension to fit for each access hatch, with key number provided by Engineer.

The topmost concrete manhole riser section of the structure shall have the female joint at the top to accommodate the placement of the beehive grate.

Elevation of structures shall be provided to Engineer prior to backfilling.

7-05.4 MEASUREMENT

Supplement this section with the following:

Measurement for weir wall structure, outlet structure and log weir will be by each installed.

7-05.5 PAYMENT

Supplement this section with following:

(10) "Outlet Structure, (Size)", per each.
(11) "Weir Wall", per each.
(12) "Log Weir", per each.
(13) "Flow Monitoring Weir", per each.

The bid item price for "Outlet Structure, (Size)" shall include all costs for the work required to furnish and install manhole sections with a pre-cast concrete base complete to finished grade including excavation, bedding, mortar, non-shrink grout, notching, ladder, connections to pipelines, beehive grate, padlock and backfill with suitable native material.

The bid item price for "Weir Wall, (Type)" shall include all costs for the work required to furnish and install weir walls as specified and as indicated on the Drawings complete to finish grade including excavation and bedding. Mineral aggregate Type 17 backfill will be paid separately.

The bid item price for "Log Weir" shall include all costs for the work required to furnish and install the log weir as specified and as indicated on the Drawings. Filter fabric and streambed cobbles will be paid separately.

The bid item price for "Flow Monitoring Weir" shall include all costs for the work required to furnish and install the weir as specified.

SECTION 7-11 PIPE INSTALLATION FOR WATER MAINS

7-11.3(9)E WATER SERVICE RELOCATION (New Section)

Contractor shall coordinate with SPU Water Department Crew to have the water meters relocated, by SPU, after the rough grade at the 2 foot shoulder is established. Allow at least 3 working days per street for the relocation of water services and meters.

Contractor shall contact Dan Enrico, at 206-233-7184, at least 10 working days before the Contractor is ready to have SPU crew in the field. Contractor shall include the relocation of the water meters into their schedule. It shall also provide support for excavation and traffic control during this task. Cost of traffic control and excavation to relocate water services and meters shall be incidental to the project and no separate payment will be made.

SECTION 7-14 HYDRANTS

7-14.3(4) RELOCATING EXISTING HYDRANTS

Supplement this Section with the following:

Contact Pat Lee at (206) 618-1318 to coordinate hydrant relocations.

SECTION 7-17 STORM DRAINS AND SANITARY SEWERS

7-17.3(1)B2 BEDDING FOR RIGID PIPE

Supplement sub section 2. Class B Bedding with the following:

At Contractor option, recycled glass may be blended with aggregates used for pipe bedding. Recycled glass aggregate shall conform to the requirements of Section 9-03.20.

7-17.3(5) POTHOLING AND FIELD INVESTIGATION (New Section)

The Engineer may direct the Contractor to pothole at specific locations in order to locate depth of existing utilities. The Contractor shall call to locate utilities prior to potholing. The Contractor shall mobilize equipment, excavate, shore, backfill, provide temporary pavement patch if needed and provide the Engineer with a report indicating the location and relative depth of utilities/objects within the pothole location. The temporary pavement patch shall consist of 3 inches of MC 250 over 6 inches of Mineral Aggregate, Type 2.

7-17.3(6) POTHOLE FOR SIDE SEWERS IN SWALES (New Section)

Contractor shall attempt to locate of all side sewer pipe within swale locations by potholing. Pot holing shall have a maximum depth of 18" beyond the maximum excavation depth of the swales.

Any side sewer crossing within swale excavations (Bioengineered Swale or Engineered Soil Swale, as detailed on Drawing Sheet 54) shall be replaced with PVC side sewer pipe per standard specifications in accordance with Section 7-18. Minimum depth of cover for new side sewer pipes shall be 6 inches measured from the maximum excavation depth of the swales.

For side sewer pipe located beyond limits of common excavation, Contractor shall report condition of pipe at the location the pipe is exposed to the Engineer (Contractor is not required to expose full length of side sewer pipe within ROW). If the Engineer determines that the side sewer is in poor condition, the Contractor will be directed to replace the side sewer within the right-of-way.

New side sewer pipe installed under a swale shall have a clay trench dam place at the low end of the pipe, at the horizontal location approximately equal to the top of swale. The clay dam shall be 6-inches thick and be constructed to minimize migration of storm water or groundwater through the side sewer trench soil. The clay dam shall be keyed into the soil surrounding the trench by extending beyond the trench limits a minimum of 8-inches into the native soil.

All side sewer pipe within 18" from limits of excavation shall be flagged as a warning to equipment operators.

7-17.5 PAYMENT

Supplement this Section with the following:

(13) "Pothole (Depth) & Field Investigation", per each.

The bid item price for "Pothole, (Depth) & Field Investigation" shall include all costs for the work required to complete the pothole and field investigation as specified in Section 7-17.3(5).

(14) "Pothole Side Sewers In Swales, (Depth)", per each.

The bid item price for "Pothole Side Sewers In Swales, (Depth)" shall include all costs for the work required to complete the pothole, report condition of pipe if found, flag pipe location and backfill hole.

(15) "Bedding For 8 In or 10 In SSD Pipe, M.A. Type 26", per linear foot.

The bid item price for "Bedding For 8 In or 10 In SSD Pipe, M.A. Type 26" shall include all costs for the work required to furnish and install the bedding to the cross section indicated on the Drawings.

(16) "Bedding, Cl C Modified, For 10 In Culvert Pipe Under Roadway", per linear foot.

The bid item price for "Bedding, Cl C Modified, For 10 In Culvert Pipe Under Roadway" shall include all costs for the work required to furnish and install the bedding as specified in Section 7-02.3(1)A.

(17) "Dam, Clay Trench", per each.

The bid item price for "Dam, Clay Trench" shall include all costs for the work required to furnish and install the clay dam as specified in Section 7-17.3(6).

SECTION 7-18 SIDE SEWERS

7-18.1 DESCRIPTION

Supplement this Section with the following:

All side sewer pipe within 18" from limits of excavation shall be protected during construction by flagging location of pipe to alert equipment operator of pipe location.

No direct unloading of dump truck soil shall be allowed within 5-feet of marked side sewer. No heavy equipment shall be permitted to drive over marked side sewer locations.

Side sewer pipe damaged by construction related activities shall be replaced by the Contractor at Contractor expense.

DIVISION 8

MISCELLANEOUS CONSTRUCTION

SECTION 8-01 EROSION CONTROL

Delete this title and Section in its entirety and replace with the following:

SECTION 8-01 WATER POLLUTION, EROSION, AND SEDIMENT CONTROL

8-01.1 DESCRIPTION (New Section)

This Work shall consist of furnishing, installing, maintaining, and removing and disposing of water pollution, erosion, and sediment control items in accordance with these Specifications, as shown in the Stormwater Pollution Prevention Plan (SWPPP), as designated by the Engineer, or as necessary on site.

8-01.2 MATERIALS (New Section)

Materials shall meet the requirements of the following Sections:

Sediment Fence Materials	*9-05.22*
Roadside Planting and Related Materials	*9-14*
Erosion Control Blanket	*9-14.5*
Quarry Spalls	*9-13.7*
Rip Rap	*9-13*
Water For Irrigation	*9-25.2*

8-01.3 CONSTRUCTION REQUIREMENTS (New Section)

8-01.3(1) GENERAL (New Section)

Controlling erosion, sediment, run-off, and related damage may require the Contractor to perform temporary work items including but not limited to:

1. Providing ditches, berms, culverts, and other measures to control surface water;
2. Building dams, settling basins, energy dissipaters, and other measures to protect downstream water quality;
3. Controlling underground water encountered during construction;
4. Covering or otherwise protecting slopes and exposed or disturbed soil areas until permanent erosion-control measures are working;
5. Installing and maintaining temporary construction fencing and/or mulch to protect existing trees, understory vegetation, and soil conditions within their associated driplines.

The Contractor shall coordinate temporary erosion control work with permanent erosion-control measures such as grading, soil preparation, planting and mulching to ensure an unbroken sequence of protection throughout the contract.The erosion controls specified herein are the minimum required to perform the work in favorable weather conditions. It is possible that additional erosion controls will be needed. If necessary, the Engineer may require additional temporary erosion control measures be installed by the Contractor.

The Contractor shall anticipate weather conditions and schedule work accordingly. The extent of excavation, borrow, and embankment operations in progress will be limited commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other pollution/erosion/sedimentation control measures current according to the approved critical path schedule. The Engineer may require the Contractor's operations to be scheduled so permanent pollution/erosion/sedimentation control features will be installed concurrently with or immediately following grading operations.

Areas of open soils left unworked for longer than 2 days, whether at final grade or not, shall be stabilized using an appropriate cover practice(s), unless otherwise directed by the Engineer.

If the Engineer, under Section 1-08.6, orders the work suspended for an extended time, the Contractor shall, before the City assumes maintenance responsibility, make every effort to control erosion, pollution, and runoff during shutdown. Section 1-08.7 describes the City's responsibility in such cases.

All temporary water pollution, erosion, and sediment controls shall be removed within 30 days after final site stabilization is achieved and the temporary controls are no longer needed as determined by the Engineer. Trapped sediment shall be removed or stabilized on site. Any areas or parts of the work that are disturbed during removal of temporary erosion and sediment controls (TESC) or trapped sediments shall be restored to the satisfaction of the Engineer, including stabilization as necessary. Nothing contained within this section shall relieve the Contractor from complying with other contract requirements.

8-01.3(1)A SUBMITTALS (New Section)

At the preconstruction conference, the Contractor shall submit a Stormwater Pollution Prevention Plan (SWPPP) to the Engineer for review and approval. If requested, the Engineer will provide full size plots of avenues and streets with base map information and major design elements shown. The Contractor shall allow at least ten working days for the Engineer's review of the SWPPP and may be required to attend a site inspection with the Engineer to facilitate that review. Review and approval of the SWPPP shall not make the City liable for plan elements or their effectiveness in meeting the requirements of the contract.

The SWPPP must be approved by the Engineer prior to the start of any onsite stockpiling, clearing, grading, or other earthwork.

The SWPPP shall be prepared and signed by an individual having completed training in and having working knowledge of Construction Site Erosion and Sedimentation Control as indicated at a minimum by certification as an Erosion & Sedimentation Control (ESC) Lead by Washington State Department of Transportation or the Associated General Contractor's of America or equal. The SWPPP shall show the scheduling, as it relates to the Contractor's critical path schedule, for both temporary and permanent pollution, sedimentation, and erosion control measures, including proposed materials and installation methods. The schedule shall include inspection and maintenance provided by the contractor to meet the requirements of the contract. Areas covered in the plan shall include but not be limited to:

1. Areas within the contract limits.
2. Areas beyond the contract limits subject to impacts by project activity.
3. Transportation facilities including Haul roads used for transport to and from the project site..
4. Critical Areas including steep slopes, wetlands, streams or other bodies of water within or adjacent to the contract limits
5. Critical root zones of trees and understory vegetation within or adjacent to the contract limits.

Other required specific elements of the SWPPP shall include (see Volume 2, Chapter 3 of Ecology's most current Stormwater Management Manual for further guidance):

1. Site drawing, to scale, showing the limits of clearing and grading, proposed locations of all temporary water pollution, erosion, sedimentation control measures. <u>If necessary, prepare multiple drawings to demonstrate how erosion control needs and measures change with stages of the work and in accordance with the project schedule.</u>
2. Location and construction details of construction entrance and exits, haul routes, and tire wash areas.
3. Integration of permanent landscaping, tree and plant protection, and permanent erosion control measures.
4. Locations of existing and proposed (temporary or permanent) storm water management facilities including but not limited to ditches, berms, culverts, pipes, sediment basins and basin outfalls.
5. Removal methods and disposal locations, including how any water quality requirements will be met, for any construction site or trench dewatering water.
6. Location and construction of any equipment wash down areas.
7. Location of staging and stockpile areas.
8. Location of impacted storm drain inlets and protection measures to be applied.

9. Indicate methods to be used for erosion and sediment control in excavations, embankments, stockpiles, and for boundary control.
10. A stormwater bypass plan, including phasing that allows non-impacted stormwater to move downstream without contacting exposed soils or otherwise becoming contaminated by the construction.
11. Method of collecting/treating sediment-laden runoff, which may include use of project cells/swales called out as "temporary sedimentation cells/swales" on the typical TESC plan, or use of a settling tank or other method to meet water quality standards prior to discharge. The proposed location of "temporary sedimentation cells/swales" shall be shown on the SWPPP.
12. Sequencing of installation of temporary erosion and sediment controls with respect to contract schedule including seeding deadlines, project milestones, permanent erosion controls, and other seasonal or project restrictions.
13. Shop drawings of any specific erosion or sediment control measures proposed by Contractor and not included on the Contract Drawings.
14. Catalog cut-sheets for all materials/systems proposed to be used in erosion control work.
15. Identification, qualifications, and certifications of the Erosion and Sedimentation Control (ESC) Lead and Erosion Control Inspectors.
16. Inspection and maintenance schedule for all proposed erosion and sediment control measures.
17. Maintenance procedures and inspection criteria for each proposed erosion and sediment control measure.
18. Emergency action plan, including contacts and phone numbers for performing emergency erosion control work outside of normal working hours.
19. Spill Prevention, Control and Countermeasures (see Section 1-07.31)

The Contractor shall keep and maintain the approved SWPPP on site for the duration of the Contract, making revisions and updates to document changed conditions and in response to a written request by the Engineer.

8-01.3(1)B EROSION AND SEDIMENT CONTROL LEAD (New Section)

The Contractor shall identify the ESC Lead at the preconstruction conference. As a minimum, the ESC Lead shall have, for the duration of the contract, a current Erosion and Sediment Control Lead Certification in Construction Site Erosion and Sediment Control issued by Washington State Department of Transportation or the Associated General Contractor's of America or equal. The ESC Lead shall implement the Plan. Implementation shall include, but is not limited to:

1. Ensuring that all temporary water pollution, erosion, and sedimentation controls are installed and maintained correctly and in a timely manner in accordance with the Contract Specifications and Drawings, the SWPPP, or as directed by the Engineer.
2. Performing daily inspections of the site and water pollution/erosion/sedimentation controls to determine their adequacy, and identify the need for maintenance. Inspections shall be documented daily and be kept on-site as part of the SWPPP for the Engineer's review at all times. Inspections shall also be performed to monitor site conditions after the first ½" and for each subsequent ½" of rainfall associated with a storm event.
3. Preparing and submitting to the Engineer each Monday (or once as week as agreed to by the Engineer) a weekly summary report. The weekly summary report shall include dated digital photographs of water pollution control and TESC measures and shall document all inspection and maintenance activities conducted that week. The report shall include daily weather conditions, amounts of precipitation, when, where, and how measures were installed, removed, and modified, repairs needed and repairs made, observations of the effectiveness of all measures. The report shall include recommendations to add or improve the performance of any controls and shall provide a schedule for corrective action by the contractor.
4. Immediately scheduling the repair, replacement, or maintenance of any damaged, inadequate, or missing items
5. Being authorized by the contractor to direct contractor crew response to ensure compliance with the plan requirements
6. Being authorized by the contractor to communicate with the Engineer regarding compliance with environmental protection requirements.
7. Updating the SWPPP to meet the requirements of regulatory agencies, jurisdictions, and the Engineer.
8. Notifying the Engineer regarding all revisions to the SWPPP and schedule implementation within 24 hours of recognition of deficiencies.

The Plan and all weekly summary reports shall be maintained on site and shall be available for review by the Engineer upon completion by the ESC lead.

8-01.3(2) COVER PRACTICES (New Section)

Where specified in the approved SWPPP, directed by the Engineer, or as necessary to prevent water pollution, erosion, or sedimentation, the following Cover Practices shall be installed, inspected, and maintained.

8-01.3(2)A EROSION CONTROL MULCHING (New Section)

Where shown in the Drawings or as directed by the Engineer, the Contractor shall place and maintain the following mulches for the purposes of temporary erosion control. Any areas that experience erosion shall be remulched or protected with matting. When no longer needed the Contractor shall remove and dispose of all mulch or matting or reuse on site if in suitable condition as directed by the Engineer.

WOOD CHIP MULCH

1. Material: Wood Chip Mulch shall be as specified in Section 9-14.
2. Application: Wood Chip Mulch application to areas exceeding ½ acre shall be applied using an approved type mulch spreader which utilizes forced air to blow mulch material. Wood Chip mulch shall be applied to achieve a minimum depth of 2", unless otherwise identified in the Contract or otherwise directed by the Engineer. Wood chip mulch may be distrubuted by hand methods to achieve the 2" (or otherwise specified depth) to areas less than ½ acre in size or areas with access limitations..
3. Maintenance & Inspection: If more than 50% of the underlying subgrade is visible in any 100 square ft. area, remulch to 100% coverage immediately.

BARK MULCH

1. Material: Bark Mulch shall be bark chips or shredded bark as specified in Section 9-14.4(3).
2. Application: Bark Mulch application to areas exceeding ½ acre in size shall be applied using an approved type bark spreader, followed by hand raking for even distribution. . Bark mulch shall be applied to achieve a minimum depth of 2" (100 tons per acre), unless otherwise identified in in the Contract or unless otherwise directed by the Engineer.
3. Maintenance & Inspection: If more than 50% of the underlying subgrade is visible in any 100 square area, remulch to 100% coverage immediately.

8-01.3(2)B EROSION CONTROL MATTING (New Section)

MATERIAL. Matting shall meet the requirements of Section 9-14.5.

INSTALLATION. Erosion control matting shall be unrolled parallel to the flow of water. If the area being matted is to receive seed and fertilizer, the seed and fertilizer shall be placed prior to the placing of matting. Where more than one strip of matting is required to cover the given area, it shall overlap the adjacent mat a minimum of 6 inches. The up-slope matting shall overlap the edge of the downslope matting by 6 inches. The up-slope end of each strip of matting shall be staked and buried in a 6-inch deep trench with the soil firmly tamped against the mat. Three stakes per width of matting (one stake at each overlap) shall be driven below the finish ground line prior to backfilling of the trench. The Engineer may require that any other edge exposed to more than normal flow of water or strong prevailing winds be staked and buried in a similar manner.

Matting edges shall be buried around the edges of catch basins and other Structures. Matting must be spread evenly and smoothly and in contact with the soil at all points.

The matting shall be held in place by approved wire staples, pins, spikes or wooden stakes driven vertically into the soil. Matting shall be fastened at intervals not more than 3 feet apart, with a minimum of three rows for each strip of matting, with one row along each edge and one row Alternately spaced in the middle. All ends of the matting and check slots, if required, shall be fastened at 6-inch intervals across their width. Length of fastening devices shall be sufficient to securely anchor matting against the soil. Anchors shall be driven flush with the finished grade.

INSPECTION AND MAINTENANCE. The Contractor shall inspect erosion control matting daily for rips, uplift, and areas of erosion. Patch ripped or otherwise damaged areas of matting with new matting extending 24-inches beyond the damaged area in all directions and fasten to the soil using the same fastening method as the parent material. Re-fasten uplifted areas, doubling the original quantity of fasteners. Areas of erosion shall be repaired and protected as necessary to prevent further erosion. Matting installed as a temporary erosion control measure shall be fully removed and disposed of when it is no longer necessary, or as directed by the Engineer. When installed as a permanent erosion control measure, the Contractor shall maintain and protect the erosion control matting through the duration of the Contract.

8-01.3(2)C CLEAR PLASTIC COVERING (New Section)

MATERIAL: Clear plastic covering shall meet the requirements of Section 9-14.5.

INSTALLATION: The Contractor shall maintain the cover tightly in place by using sandbags on ropes with a minimum 10-foot grid spacing in all directions. All seams shall be taped or weighted down full length. There shall be at least a 12-inch overlap of all seams. If plastic covering is being used on a slope, the up-slope end shall be secured and buried in a 6-inch deep trench with the soil firmly tamped against the plastic covering.

INSPECTION AND MAINTENANCE: The Contractor shall inspect clear plastic covering daily for rips, uplift, and areas of erosion. Patch ripped or otherwise damaged areas of covering with new covering extending 24-inches beyond the damaged area in all directions and fasten to the base sheet by taping. Re-fasten uplifted areas, doubling the original quantity of fasteners. Contact between the plastic and the ground should always be maintained. Any air bubbles found shall be removed immediately. Areas of erosion shall be repaired and protected as necessary to prevent further erosion. Clear plastic covering installed as a temporary erosion control measure shall be fully removed and disposed of when it is no longer necessary, or as directed by the Engineer.

8-01.3(3) STRUCTURAL & BIOMECHANICAL EROSION & SEDIMENTATION CONTROLS (New Section)

Where specified in the approved SWPPP, or as necessary to prevent water pollution, erosion, and/or sedimentation the Contractor shall install, inspect, and maintain the following Structural and Biomechanical Controls.

8-01.3(3)A CONSTRUCTION ROAD STABILIZATION (New Section)

Where shown on the Drawings, as directed by the Engineer, or as needed to prevent water pollution and/or erosion, the Contractor shall stabilize construction roads including, but not limited to, access roads, haul roads, subdivision roads, parking areas, and other on-site vehicle transportation routes immediately after grading in accordance with the Drawings and these specifications.

INSTALLATION Road stabilization shall consist of a 6-inches of crushed rock base course applied immediately after grading or the completion of utility installation within the right-of-way. Contractor may, at the approval of the Engineer, substitute a 4-inch course of asphalt treated base in lieu of the crushed rock.

INSPECTION AND MAINTENANCE Inspect stabilized roads daily and during and immediately following storm events having 0.25-inches of precipitation or greater. Grade ruts by backblading or grading with a motor grader. Place additional crushed rock to maintain a 6-inch thickness.

8-01.3(4) SEDIMENT RETENTION (New Section)

Where shown on the Drawings, specified in the Special Provisions, or as directed by the Engineer, the Contractor shall install, inspect, and maintain the following Sediment Retention Controls.

8-01.3(4)A SEDIMENT FENCE (New Section)

GENERAL The Contractor shall install and maintain sediment fences at the locations shown on the Drawings. The sediment fences shall be constructed downslope from areas of clearing, grading, or drainage prior to starting those activities. The sediment fence shall prevent runoff from moving beneath or over the fence while slowing the movement of water through the fence, thereby reducing the migration of sediments to downslope areas. Sediment fences shall not be placed across streams. Sediment fences shall not be placed across ditches unless directed or approved by the engineer. . The minimum height of the top of the sediment fence shall be 2-1/2 feet and the maximum height shall be 3 feet above the original ground surface. Damaged or improperly functioning portions of sediment fences shall be repaired or replaced by the Contractor at no cost to the Owner.

The geotextile shall be attached on the up-slope side of the posts and support systems with staples, wire, or in accordance with the manufacturer's recommendations. The geotextiles shall be attached to the posts in an approriate manner to prevent tearing at the staples, wire, or other connection device. Sediment fence backing support for the geotextile in the form of wire or plastic mesh may be required depending on the properties of the geotextile selected for use in Table 6 in Section 9-05.22. If wire or plastic backing mesh is used, the mesh shall be fastened securely to the up-slope side of the posts with the geotextile fastened up-slope of the mesh backing support.

The geotextile shall be manufactured with sewn seams to form geotextile lengths as required. All seams shall be located at a support post. Alternatively, two sections of sediment fence can be overlapped, provided the Contractor can demonstrate acceptable results to the Engineer, that the overlap is long enough and that the adjacent fence sections are close enough together to prevent sediment laden water from escaping through the fence at the overlap.

The geotextile at the bottom of the fence shall be buried in a trench to a minimum depth of 6 inches below the ground surface. Excavation for installation of sediment fence shall within the dripline of trees and other vegetation to be retained shall be approved by the Engineer prior to trenching and shall circumvent critical root zones unless specifically allowed by the Engineer. The trench shall be backfilled and the soil tamped in place over the buried portion of the geotextile as shown on the Drawings, such that no flow can pass beneath the fence nor scour occur. When wire or plastic backing support mesh is used, the wire or plastic mesh shall extend into the trench a minimum of 3 inches. The fence posts shall be placed or driven a minimum of 1-1/2 feet into the ground.

Sediment fence shall be installed perpendicular to slopes. Fence post depths shall be increased by 6 inches if the fence is located on slopes exceeding 3H:1V . If required post depths cannot be obtained, the posts shall be adequately secured by bracing or guying to prevent overturning of the fence due to sediment loading.

Sediment fences shall be located on the contour with ends turned uphill to capture runoff and prevent flow around the ends of the fence. Where the installation requires the crossing of contours in areas other than at the ends, gravel check dams shall be placed perpendicular to the uphill face of the fence to minimize concentrated flow and erosion along the back of the fence. The gravel check dams shall be approximately 1 foot deep at the fence and shall continue perpendicular to the fence at the same elevation until the top of the check dam intercepts the ground surface. The gravel check dams shall consist of crushed surfacing base course gravel backfill for walls, or shoulder ballast. The gravel check dams shall be located every 10 feet along the fence where the fence crosses contours. The slope of the fence line where contours are crossed shall not be steeper than 3H:1V.

POSTS Either wood or steel posts shall be used. Hardwood posts shall have minimum dimensions of 1-1/4 inches by 1-1/4 by the minimum length shown on the Drawings, and shall be free of defects such as knots, splits, or gouges. If fir or hemlock is used (stud grade), the posts shall have minimum dimensions of 1-1/2 inches by 3 inches. Steel posts shall be 2 U, T, L, or C shape steel posts with a minimum weight of 1.35 lbs./ft. The spacing of the support posts shall be a maximum of 6 feet on center with a 10' span allowed for sediment fence with reinforcement mesh. .

Steel posts used for permanent sediment fence shall be hot-dipped galvanized shall be galvanized in accordance with the requirements of ASTM A 123, or ASTM A 153.

Fence backing support, if used, shall consist of steel wire with a maximum mesh spacing of 2 inches, or a prefabricated plastic mesh. The strength of the wire or plastic mesh shall be equivalent to or greater than that required in Table 6 of Section 9-05.22 for unsupported geotextile (i.e., 180 lbs. grab tensile strength). The plastic mesh shall be as resistant to ultraviolet radiation as the geotextile it supports and steel wire mesh shall be hot-dip galvanized, class 3.

INSPECTION AND MAINTENANCE The Contractor shall inspect all sediment fences daily during inclement weather, and at least once per week, provided no precipitation has fallen that week. Should any of the following conditions be found to occur: rips, tears, broken fence stakes or posts, or stakes/posts that lean greater than 15 degrees from plumb, water leaking beneath the sediment fence, or any other conditions that would lower the effectiveness of the sediment fence, the Contractor shall immediately repair and/or replace the sediment fence as necessary. When sediment has accumulated to be 0.1-foot or greater in depth at any location along the silt fence, the Contractor shall remove and dispose of the sediment.

Sediment fencing installed as a temporary erosion control measure shall be fully removed and disposed of when it is no longer necessary, or as directed by the Engineer. The bid item price for sediment fence, if included in the contract, includes installation, maintenance, and, if necessary, replacement to meet pollution and sediment control requirements for the duration of the contract.

8-01.3(4)B STORM DRAIN INLET PROTECTION (New Section)

Storm Drain Inlet protection shall be as specified in Section 9-14.15.

INSTALLATION: Place at catch basins and other inlets as per the SWPPP and the manufacturer's recommendations. Cut excess fabric away from inlet border to prevent the excess fabric from covering and blocking the inlet.

INSPECTION AND MAINTENANCE: The Contractor's ESC lead shall inspect storm drain inlet protection devices daily to ensure proper placement and function. Inspection requirements for weekly reports or in response to rain events in excess of ½" shall include the measurement of sediment build up. Water flow into the catch basin shall be uninterrupted by the device. Clean or replace the device when build-up of sediment or backing-up of water flows entering the protected catch basin occurs.

8-01.3(4)C COMPOST SOCKS (New Section)

MATERIAL: A mesh tube filled with composted material such as Compost Filter Sock by Cedar Grove or approved equal. Composted material shall meet the requirements of Section 9-14.4(8).

INSTALLATION: Compost socks shall be produced using a pneumatic blower hose or equivalent to fill the mesh tube with compost to create a uniform cross-section and density. Compost socks shall be a minimum 8 inches in diameter. Place along the edge of roadways as indicated on the Drawings or as directed by the Engineer. Once placed, weight shall be applied to the sock to improve the contact between the sock and the ground surface.

INSPECTION AND MAINTENANCE: The Contractor's ESC lead shall inspect compost socks daily to ensure proper placement and function. Inspection requirements for weekly reports or in response to rain events in excess of ½" shall include the measurement of sediment build up. Remove sediment when build up is within 2 inches of the top of the compost sock. If mesh tube becomes torn, the Contractor shall repair using twine, zip-ties or wire. Large sections of damaged socks shall be replaced. When device is no longer needed, slit tube and spread composted material on site. Dispose of mesh in a proper manner.

8-01.3(4)D TEMPORARY SEDIMENTATION CELL CONSTRUCTION (New Section)

When sedimentation ponds/traps are required, they shall be fully functional and documented as such in the Contractor's SWPPP before beginning other grading and excavation work. Bioretention, Engineered or Cascade Swale areas may be used for the construction of temporary sedimentation ponds/traps as indicated on the Drawings. The Drawings show a typical layout plan for Street or Avenue installations. The Drawings identify these areas as Temporary Sedimentation Cells.

The surface 3-inches of any Temporary Sedimentation Cell shall be removed prior to the placement of Engineered or Bioretention Soil. Once Engineered or Bioretention Soil has been placed, the swale may no longer be used as a Temporary Sedimentation Cell, unless otherwise approved by the Engineer. If an Engineered or Bioretention Soil area is authorized for use as a Temporary Sedimentation Cell, the Contractor shall remove the upper 3-inches of the Engineered or Bioretention Soil and replace in kind prior to approval of the swale grading.

8-01.3(6) STREET CLEANING (New Section)

Self-propelled vacuum-equipped street sweepers shall be used to prevent the transport of sediment and other debris from all paved areas within the project boundaries, adjacent areas, and project-impacted haul routes. Perform street cleaning at the end of each day's operations and at such interim periods as required to prevent track-out and transport of sediment. Street washing with water will require approval by the Engineer.

8-01.3(6) MANUAL SWEEPING (New Section)

Manual sweeping shall occur for the duration of the project, and as frequently as necessary during any given day, or as directed by the Engineer, to ensure that material dropped during construction is not tracked off-site and to minimize the amount of material allowed to accumulate on impervious surfaces that may be carried off-site by the next rain event.

8-01.4 MEASUREMENT (New Section)

Bid items of Work completed pursuant to the Contract will be measured as provided in Section 1-09.1, Measurement of Quantities, unless otherwise provided for by individual measurement paragraphs herein this Section.

The Stormwater Pollution Prevention Plan (SWPPP) will be measured by the lump sum.

Wood chip mulch, bark mulch and erosion control matting will be measured by ground slope measurement in square feet of actual ground surface covered, accepted, and protected. No separate measurement will be made for anchor trench, sandbags, or rope, stakes, or soil staples and other hold-down devices associated with erosion control matting.

Measurement of storm drain inlet protection shall be per each for each control installed and maintained.

Measurement of sediment fence will be by the linear foot of sediment fence installed, accepted, and maintained. Repair and replacement of damaged materials will not be measured.

Measurement for compost socks and temporary asphalt berms will be by the linear foot. Composted material used in the compost socks will not be measured.

Measurement of temporary sedimentation cells shall be per each feature installed, maintained and restored.

No separate measurement will be made for street sweeping activities on public or adjacent roadways as a result of the failure of the on-site erosion controls to prevent track-out of sediment from the site.

When an erosion control bid item is temporary in nature (i.e. does not remain in place after the contract), there will be no separate measurement for removal and disposal of the controls.

8-01.5 PAYMENT (New Section)

Compensation for the cost necessary to complete the work described in Section 8-01 will be made at the Bid item prices Bid only for the Bid items listed or referenced as follows:

(1) "Stormwater Pollution Prevention Plan", per lump sum.

The bid item price for "Stormwater Pollution Prevention Plan", shall include all costs for the work required to prepare, submit, inspect, monitor/document (via daily inspections and weekly reports), and update/amend the SWPPP for the duration of the Contract.

Payment will be made in three payments at the rate of 25%, 25%, 50% of the Bid item price for "Stormwater Pollution Prevention Plan". The first payment of 25% will be processed upon completion of an approved SWPPP. The second payment will be processed upon completion of work equal to 50% of the Awarded Contract Price based on payment to date. The third and final payment will be processed upon Physical Completion of the Work.

Cost of the ESC Lead shall be considered incidental to the cost of the SWPPP and no separate payment will be made.

(2) "Erosion Control, Matting (Type)", per square foot.

The bid item price for "Erosion Control, Matting (Type)" shall include all costs for the work required to furnish and install the specified type matting. All costs to repair and maintain matting and coverings shall be included in this bid item price.

(3) "Temporary Asphalt Berm", per linear foot.

The bid item price for "Temporary Asphalt Berm" shall include all costs for the work required to furnish, install, maintain, and remove the asphalt berm.

(4) "Temporary Sediment Fence", per linear foot.

The bid item price for " Sediment Fence" shall include all costs for the work required to furnish, install, remove, and dispose of sediment fence. All costs to repair, maintain and replace (as necessary) sediment fence shall be included in this bid item price.

(5) "Storm Drain Inlet Protection", per each.

The bid item price for "Storm Drain Inlet Protection" shall include all costs for the work required to furnish, install, maintain, and remove and dispose of the specified type inlet protection.

(6) "Temporary Sedimentation Cell", per each.

The bid item price for "Temporary Sedimentation Cell" shall include all costs for the work required to clean and restore the cell as specified.

(7) "Compost Sock", per linear foot.

The bid item price for "Compost Sock" shall include all costs for the work required to furnish, install, maintain, and remove the compost sock as specified.

Temporary mulch placed at the direction of the Engineer for erosion control purposes will be paid using the bid item "Bark Mulch" or "Shredded Mulch" in accordance with Section 8-02. Mulch used as temporary mulch shall be removed and disposed of off site unless directed otherwise by the Engineer. Cost of work required to remove and dispose of temporary mulch will be paid using the bid item "Common Excavation".

Cost of dust control measures, use of temporary clear plastic sheeting and construction of a temporary stormwater bypass system shall be considered incidental to the various bid items comprising this improvement and no separate payment will be made.

SECTION 8-02 ROADSIDE PLANTING

8-02.2 MATERIALS

Supplement this Section with the following:

Materials shall meet the requirements of the following Sections:

Biorentetion Soil	9-14
Engineered Soil	9-14
Shredded Mulch	9-14
Composted Material	9-14

Bioretention Soil shall be used in areas indicated on the Drawings.

Engineered Soil shall be used on Cascade Swale bottoms and Engineered Soil Swale bottoms as indicated on the Drawings.

Mulch for exposed earth areas shall be Shredded Mulch or Bark Mulch at locations indicated in the Drawings or as directed by the Engineer.

Mulch in Cascade Swale bottoms shall be Mineral Aggregate Type 4.

8-02.3(23) TREE ROOT PRUNING PROCEDURE

Delete this section and replace with the following:

All grading within the critical root zone shall be done under the direction of the Engineer. Root structure 2 inches or greater shall not be cut. All tree roots 2 inches or greater shall be tunneled under. Roots smaller than 2 inches must be cleanly cut flush with the edge of the trench. No ripping or tearing of the root structure will be allowed. See Section 1-07.16(2).

Supplement this Section with the following:

When trenching within drip lines of trees, root pruning shall be conducted as directed by Engineer. City Engineer or Landscape Architect shall be on site during root pruning. Root pruning work shall be incidental to pipe installation.

8-02.3(24) ENTRY ACCESS WALKWAYS (New Section)

8-02.3(24)A DESCRIPTION (New Section)

Walkways for access to private property from private driveways (or the street edge) are conceptually represented on the paving plan to be provided under this contract. Walkways shall be constructed by one of two methods: as concrete sidewalk or precast concrete pavers (with width, alignment, and grades to be field directed for compatibility with existing conditions).

Construction requirements for each property shall be generally conveyed to the Contractor by the Engineer at the preconstruction review for each avenue, subject to final confirmation 15 working days prior to the installation of access walks as identified in the Contractor's construction schedule.

8-02.3(24)B PRECAST PAVERS (New Section)

The Contractor shall install Westcon Hydra-Prest (Natural Granitech) 24"x24"x1.78" pavers, or approved equal, at locations provided by the Engineer. Precast pavers will be installed as an alternative to sidewalk leading to private property.

Precast paver installation shall be as detailed in the Appendix. Depth of compacted base (Mineral aggregate Type 1) shall be a minimum of 2" , varying as required to match existing grades and/or to provide required stability as directed by the Engineer. Fill voids between pavers with Engineered Soil. Edge treatment of pavers will vary depending on the surrounding grade.

8-02.3(25) CLUSTERED MAILBOXES (New Section)

At locations indicated on the Drawings, cluster mailbox structures shall be installed in accordance with the detail shown on Drawing Sheet 58.

8-02.3(26) TREE PIT PREPARATION (New Section)

Drawing Sheets 16, 17, 25, 31, 38, 45, and 48 conceptually identify locations for trees to be procured and installed by others. Tree pits shall be prepared by excavating of an area 5' in diameter to a depth of 18", thorough incorporation of 1/3 CY of Composted Material into the excavated material, backfill, compaction to 85% and mulching of the Tree pit area. Tree pit locations shall be field staked by the contractor according to the contract plans a minimum of 5 working days prior to tree pit preparation. Field stakes shall be 2" x 2" x 2' stakes clearly marked to identify the name of the tree to be installed. Final tree pit locations shall be subject to adjustment during the time between field staking and tree pit preparation. Costs for the work required for Tree Pit Preparation shall be paid using the bid items "Common Excavation", "Composted Material" and "Bark Mulch".

8-02.3(27) PLANTING AREA PREPARATION (New Section)

Drawing Sheets 16, 17, 25, 31, 38, 45, and 48 conceptually identify areas for Planting Area Preparation as all disturbed areas between the roadway edge and the Right of Way line. Drainage plan, cross section, and/or detail call-outs for finish grade materials including but not limited to Engineered Soil, Bioretention Soil, River Rock, Rock Facing and Splash Rock overlapping area delineated for "Planting Area Preparation" shall be deducted from the total area to be prepared per this specification.

Planting Area Preparation shall include all labor, equipment, and materials to scarify native soil to a depth of 4"-6" , install a 3" lift of Composted Material, thoroughly blend the two materials to provide a homogeneous mix., compact material to 85% and topdress with mulch. Scarfication within the dripline of existing trees and other vegetation to be retained shall be field directed and reduced in depth and/or provided by the Contractor by hand (or other approved) methods to reduce damage to roots. Cost for the work required for Planting Area Preparation shall be paid using the bid items "Composted Material", "Shredded Mulch" and "Bark Mulch". Scarification of existing soil surfaces shall be incidental to the various bid items comprising this improvement and no separate payment will be made.

8-02.4 MEASUREMENT

Supplement this Section with the following:

Measurement for "Engineered Soil" and "Shredded Mulch" shall be per cubic yard measured in the hauling conveyance at the point of delivery. The Contractor shall notify the Engineer at least 24 hours prior to material delivery to ensure the Engineer's presence for measurement at the time of delivery. No payment will be made for material deliveries not witnessed by the Engineer.

Measurement for "Clustered Mailboxes" will be per each cluster mailbox structure installed.
Measurement for "Precast Pavers" will be by the square foot.
No separate measurement will be made for "Bioretention Soil".

8-02.5 PAYMENT

Supplement this Section with the following:

(21) "Engineered Soil", per cubic yard.

The bid item price for "Engineered Soil" shall include all costs for the work required to furnish and place the Engineered Soil as specified and as indicated on the Drawings.

(22) "Shredded Mulch", per cubic yard.

The unit contract price for "Shredded Mulch" shall include all costs to furnish, stockpile, and install the mulch as specified.

(23) "Clustered Mailboxes", per each.

The bid item price for "Clustered Mailboxes" shall include all costs for the work required to furnish and install the cluster mailbox structure as specified including the work required to temporarily relocate existing mailboxes and to reinstall them on the new cluster mailbox structure. Concrete sidewalk adjacent to the structure will be paid separately.

(24) "Precast Pavers", per square foot.

The bid item price for "Precast Pavers" shall include all costs for the work required to furnish and install pavers as specified including crushed rock base course. Engineered Soil will be paid separately.

(25) "Composted Material", per cubic yard.

The bid item price for "Composted Material" shall include all costs for the work required to furnish and place the composted material as specified and as indicated on the Drawings.

Payment for the work required to furnish and place "Bioretention Soil" will be made using the Bid Items "Common Excavation", "Embankment Compaction" and "Composted Material".

Payment for the work required for Tree Pit Preparation will be made using the Bid Items "Common Excavation", "Composted Material" and "Bark Mulch" as specified.

Payment for the work required for Planting Area Preparation will be made using the Bid Items "Composted Material", "Shredded Mulch" and "Bark Mulch" as specified.

Cost of soil testing shall be considered incidental to the various items comprising this improvement and no separate payment will be made.

SECTION 8-03 IRRIGATION SYSTEM

8-03.1 DESCRIPTION

Replace the first paragraph of this section with the following:

This work shall consist of furnishing and installing a manual quick coupling valve irrigation system, including point of connection and backflow prevention device as indicated on the Drawings.

8-03.2 MATERIALS

Replace this section with the following:

Materials shall meet the requirements of the following Sections:

Galvanized Pipe and Fittings	9-15
Polyvinyl Chloride Pipe and Fittings	9-15
Quick Coupling Equipment	9-15
Double Check Valve Assemblies	9-15
Reduced Pressure Valves	9-15

Irrigation equipment and manufacturers shall be as indicated on the Drawings, or approved equivalent in materials and performance.

SECTION 8-04 CEMENT CONCRETE CURB, CURB AND GUTTER

8-04.5 PAYMENT

Supplement this Section with the following:

(4) "Curb and Gutter, Modified", per linear foot.

The bid item price for "Curb and Gutter, Modified" shall include all costs for the work required to construct the modified curb and gutter as indicated on the Drawings.

(5) "Traffic Circle, Type 415", per lump sum.

The bid item price for "Traffic Circle, Type 415" shall include all costs for the work required to construct the traffic circle in accordance with Standard Plan #415 including pavement and base course removal, loosening of subsoil, lane markers and the object marker traffic sign (per Std Plan 626). Placement of soil will be paid separately.

SECTION 8-12 CHAIN LINK FENCE AND WIRE FENCE

8-12.3(4) RECYCLED PLASTIC FENCE (New Section)

Fence shall be post and rail type with two (2) rails. Height to be 40-45 inches above finished grade. Fence material shall be manufactured from a minimum of 80% recycled high-density polyethylene. Installation shall follow manufacturer guidelines and the typical installation detail included in the Appendix. Posts shall be embedded a minimum of 30-inches into a PVC sleeve. To secure post, sleeve shall be filled with mineral aggregate Type 9. Posts shall be a maximum of 5'-feet 3-inches apart. Color shall be a brown or weathered wood variation. Recycled plastic material shall have a 20-year manufacturers warrantee. Submit sample to Engineer for approval 7 days prior to installation. Fencing shall be installed at locations indicated on the Drawings and as directed by Engineer.

Fence shall be supplied by Aeolian Enterprises or approved equal.

Distributor - Schrader Co., Bob Lewis, 8216 23rd Pl NE Everett, 98205 425.377.1550

8-12.3(5) COMPOST FENCE (New Section)

Compost Fence shall be constructed per detail on Drawing Sheet 59. Locations to be determined by Engineer.

8-12.3(6) WOOD FENCE (New Section)

At locations indicated on the Drawings, the Contractor shall relocate wood fencing or construct new wood fencing as field conditions warrant. If new wood fencing is constructed it shall be to an equal or better condition than the existing. New fencing shall match existing fencing in style, height and material choice.

8-12.4 MEASUREMENT

Supplement this Section with the following:

Recycled plastic fence and compost fence will be measured by the linear foot of completed fence, along the ground line, exclusive of openings.

8-12.5 PAYMENT

Supplement this Section with the following:

(9) "Fence, Recycled Plastic, Post & Rail", per linear foot.
(10) "Fence, Compost", per linear foot.
(11) "Fence, Wood, 4-6 Ft High", per linear foot.

The bid item price for "Fence, Recycled Plastic, Post & Rail" shall include all costs for the work required to furnish and install a complete fence as specified including but not limited to rails, posts, post caps, fence pins, pvc sleeves, mineral aggregates, excavation, backfill and compaction.

The bid item price for "Fence, Compost" shall include all costs for the work required to furnish and install a complete fence as specified.

The bid item price for "Fence, Wood, 4-6 Ft High" shall include all costs for the work required to relocate existing wood fencing or to furnish and install new wood fencing as specified.

SECTION 8-14 CEMENT CONCRETE SIDEWALK

8-14. 2 MATERIALS

In the last paragraph of this section delete "No lamp black shall be used in curb ramps."

8-14.3(7) CURB RAMP, TYPE 1

Supplement this Section with the following:

For this Contract, City of Seattle Standard Plan 422a shall be modified by changing the width of the center ramp section from 3'-0" to 4'-0".

All curb ramps constructed as a part of this Contract shall include a 2 foot by 4 foot warning strip (with truncated domes) to be located in the center ramp at the curb face. The warning strip shall meet the requirements specified in Section 8-14.3(8).

All costs for the purchase and installation of the warning strip shall be including in the bid item price for "Curb Ramp, (Type)" and no separate payment will be made.

8-14.3(12) TRUNCATED DOMES IN CURB RAMPS AND SIDEWALK (New Section)

All curb ramps constructed as a part of this Contract shall include a 2 foot by 4 foot warning strip to be located in the center ramp at the curb face. Portions of concrete sidewalk constructed as a part of this Contract shall include a 2 foot wide warning strip at locations indicated on the Drawings.

The warning strip shall met the requirements for tactile warning surfaces established by the Americans with Disabilities Act Title 49 CFR Transportation, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, Section 4.29.2 – Detectable Warning on Walking Surfaces.

The warning strip shall be a vitrified polymer composite tile with epoxy polymer composition with an ultra violet stabilized coating of aluminum oxide particles.

The vitrified polymer composite tile shall have an in-line pattern of truncated domes 0.2 inches in height, 0.9 inches at the base, and 0.4 inches at top of dome. Domes shall be spaced 2.35 inches as measured diagonally across the pattern and 1.7 inches as measured on the side of the pattern. The field area between the domes shall have a non-slip surface with a minimum of 40 - 90° raised points 0.045 inches high per square inch.

The nominal size of the tile shall be 24 inches by 48 inches. The face thickness of the tile shall be 3/16 of an inch (± 5%). The depth of the tiles shall be 1.4 inches (± 5%). Warpage of edge shall be at most 0.5%. Water absorption of tile as tested per ASTM-D 570 shall not exceed 0.35%.

Slip resistance of tile on the top of the domes or on the field area between the domes, as measured by the combined wet/dry static co-efficient of friction tested per ASTM-C 1028, shall not be less than 0.90.
The Compressive strength of the tile as tested per ASTM-D 695-91 shall not be less than 18,000 psi.

The tensile strength of the tile as tested per ASTM-D 638-91 shall not be less than 10,000 psi.

The flexural strength of the tile as tested per ASTM C293-94 shall not be less than 24,000 psi.

The chemical stain resistance of the tile as tested per ASTM-D 543-87 shall withstand, without discoloration or staining, 1% hydrochloric acid, urine, calcium chloride, stamp pad ink, gum and red aerosol paint.

The abrasive wear of the tile as tested by BYK – Gardner Tester ASTM-D 2486 with a reciprocating linear motion of 37± cycles per minute over a 10 inch travel. The abrasive medium, a 40 grit Norton Metallite sand paper, to be fixed and leveled to a holder. The combined mass of the sled, weight and wood block to be 3.2 pounds. Average wear depth shall not exceed 0.03 inches after 1000 abrasion cycles measured on the top surface of the dome. The average shall be based upon three measurement locations per sample.
Fire resistance of the tile as tested per ASTM E84 shall have a flame spread of less than 25.

The Gardner Impact to geometry "GE" of the tile as tested by ASTM-D 5420-93 to have a mean failure energy as expressed as a function of specimen thickness of not less than 450 inch 1bf/inch. Failure occurs if a hairline fracture is visible in the specimen.

Accelerated weathering of tile as tested by ASTM-G26-95 for 2000 hours shall exhibit no deterioration, fading or chalking of surface.

Tiles shall have a five year warrantee against breakage, fading and deformation.

The tile color shall be white.

The warning strip shall be "Armor-Tile" as manufactured by Engineered Plastics Inc., (Phone 800-682-2525) or approved equal.

The vitrified polymer composite tile shall be cast-in-place with the curb ramp or sidewalk.

The contrast in light reflectance between the curb ramp and the warning strip shall be at least 70%. Contrast shall be determined by formula below where B_1 is the light reflectance value (LRV) of the tile, B_2 is the LRV of the curb ramp.

$$\text{Contrast} = 100 \times (B_1 - B_2)/B_1$$

Contrast may be achieved by adding lamp black, in an amount not to exceed 1-1/2 pounds per cubic yard of concrete, or other approved coloring agent to the concrete mix for the curb ramp or sidewalk.

Accelerated aging and freeze thaw test of the cast in place tile shall as tested by ASTM-D 1037 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosing of tile or other defects.

Salt and spray performance of the cast in place tile as tested by ASTM-B 117 shall not show any deterioration or other defects after 100 hours of exposure.

Contractor shall submit to the Engineer:

- tile manufacturer's description of product, installation and maintenance procedures.
- two tile samples, 6 inch by 8 inch minimum size.
- shop drawings showing fabrication details, composite structural system, plans of tile placement, including joints, and material to be used as well as outlining installation materials and procedures.
- Material test reports from a qualified independent testing laboratory indicating that the tile meets the requirements of this section.
- Manufacturer's warrantee against breakage, fading and deformation.

8-14.5 PAYMENT

Supplement this Section with the following:

(8) "Sidewalk, Cement Concrete With Truncated Domes", per square foot.

The bid item price for "Sidewalk, Cement Concrete With Truncated Domes" shall include all costs for the work required to construct concrete sidewalk with a truncated dome warning strip as specified.

(9) "Sidewalk, Cement Concrete, 6 Inch With Monolithic Curb", per square yard.

The bid item price for "Sidewalk, Cement Concrete, 6 Inch With Monolithic Curb" shall include all costs for the work required to construct the modified concrete sidewalk as indicated on the Drawings. No separate payment will be made for the monolithic curb.

SECTION 8-15 RIPRAP

8-15.2 MATERIALS

Supplement this Section with the following:

River Rock shall be 4-8" size smooth washed rock as available from Homestead Valley Sand & Gravel (425.831.6125) or approved equal.

Streambed Cobbles shall be 2-4" size smooth washed rock as available from Homestead Valley Sand & Gravel (425.831.6125) or approved equal. Rocks > 1" screened from native soils may be substituted for the Streambed Cobbles spec for all Avenue sites.

Splash Rock shall be as specified in Section 9-03.

1-Man, 2-Man and 3 Man Rocks shall be granite rocks as specified in Section 9-03.19 or rock facing type rocks as specified in Section 9-03.17 of the Standard Specifications.

8-15.3(8) X-MAN ROCK PLACEMENT (New Section)

1, 2 and 3-Man rocks shall be placed in locations identified on the Drainage Plan sheets and have supplemental 1, 2, and 3 Man Rock quantities placed as field directed during construction to reinforce/stabilize slopes and blend landscaped area with rockery installation. 1-man rock placed in locations shown on the Drainage plan shall be rock facing material unless otherwise directed by Engineer. Approximately 75% of 2 and 3-manrock installed shall be Granite rock as specified in Section 9-03.19, and approximately 25% of 2 and 3-man rock placed shall be rock facing material as specified in Section 9-03.17 (of the Standard Specifications). Rocks shall be subject to selection at the source by the Engineer's representative to ensure compatibility with site conditions unless otherwise directed by the Engineer (minimum 5 working days notice required to coordinate schedules for this work). Location and orientation of some rocks set on site shall be as field directed by the Engineer's representative (minimum 5 working days notice required to coordinate schedules for this work).

8-15.5 MEASUREMENT

Supplement this Section with the following:

Measurement for "River Rock, (Size)" and "Streambed Cobbles, (Size)" will be by the ton.
Measurement for "Splash Rock" will be per each.
Measurement for "X-Man Rock, (Type)" will be by the ton.

8.15.4 PAYMENT

Supplement this Section with the following:

(8) "River Rock, (Size)", per ton.
(9) "Streambed Cobbles, (Size)", per ton.

The bid item price for "River Rock (Size)" and "Streambed Cobbles, (Size)" shall include all costs for the work required to furnish and install river rock and cobbles at locations indicated in the Drawings.

(10) "Splash Rock", per each.

The bid item price for "Splash Rock" shall include all costs for the work required to furnish and install the splash rocks at locations indicated in the Drawings.

(11) "X-Man Rock, (Type)", per ton.

The bid item price for "X-Man Rock, (Type)" shall include all costs for the all labor, equipment, and materials required to provide, deliver, locate, orient, and set rocks according to the Drawings and to field direction to ensure compatibility with the landscape features associated with the project.

SECTION 8-17 KEYSTONE WALL (New Section)

8-17.1 DESCRIPTION (New Section)

A keystone gravity retaining wall shall be constructed at 10725 Palatine Avenue. The wall shall be constructed of individual Keystone units manufactured by Keystone Retaining Wall Systems, Inc. or approved equal. Installation of the Keystone Wall shall be per manufacturer's recommendations.

8-17.4 MEASURMENT (New Section)

Measurement for "Keystone Wall" will be by the square foot measured on the vertical face of the wall including that portion of the wall installed below grade.

8-17.5 PAYMENT (New Section)

Compensation for the cost necessary to complete the work described in Section 8-17 will be made at the unit contract prices bid only for the pay items listed or referenced below:

(1) "Keystone Wall," per square foot.

The unit contract price for "Keystone Wall" shall include all costs for the work required to construct complete and in place a keystone retaining wall as indicated on the Drawings.

Excavation required to build the wall will be paid separately in accordance with Section 2-03.

Mineral aggregates required to fill voids in and between Keystone units and for wall backfill will be paid separately in accordance with Section 4-01.

DIVISION 9

MATERIALS

SECTION 9-03 AGGREGATES

SECTION 9-03.18 SPLASH ROCK (New Section)

Splash Rock shall be native granite stone. Minimum Dimensions shall be 30-inches across in any horizontal direction and 6-inches deep in any vertical direction. Rock shall be approximately 165 pounds per cubic foot.

SECTION 9-03.19 GRANITE ROCK (New Section)

Granite rock shall be native stone, locally quarried and "High Cascade Granite" or "Bandera Weathered Granite" as available from Marenakos Rock Center (425.392.3313) or approved equal. If a source other that Maranakos is proposed, the Engineer shall inspect rocks at the quarry for approval of material prior to its delivery on site. Rock shall be approximately 165 pounds per cubic foot.

Size	Approx Weight	Minimum Approx Dimensions	Approx Volume
One-man rock	150 - 300 lbs	12 inches	0.9 - 1.8 cf
Two-man rock	310- 1000 lbs	14 inches	2 – 6 cf
Three-man rock	1010-2000 lbs.	18 inches	6 - 12 cf
Four-man rock	2010 - 4500 lbs	24 inches	12 - 27 cf

9-03.20 RECYCLED GLASS AGGREGATE (New Section)

At Contractor option, reclaimed glass may be blended with the following materials used on this project:

Shoulder Ballast	9-03.9(2)
Gravel Backfill for Pipe Zone Bedding	9-03.12(3)

Aggregates containing reclaimed glass shall conform to the requirements of these Specifications for each item listed above. No aggregate shall contain more than 15 percent glass by weight. No more than 10 percent of the material retained on an individual sieve 1/4-inch or larger shall be glass, based upon visual examination and weight.

One hundred percent of the glass shall pass a 3/4-inch square sieve and not more than 5 percent by weight shall pass a U.S. No. 200 sieve. Sieve analysis shall be conducted according to AASHTO T 27 on at least a quarterly basis by the product supplier. All test results shall be kept on file by the product supplier.

The maximum debris level shall be 10 percent. Debris is defined as any deleterious material which impacts the performance of the engineered fill and includes all non-glass constituents of the glass feedstock. The percentage of debris in cullet shall be quantified using the following visual method. Approximately 200 grams of processed cullet shall be placed in a flat pan or plate. The percentage of debris shall be estimated using AGI Data Sheets 15.1 and 15.2 "Comparison Charts for Estimating Percentage Composition," by the American Geological Institute, 1982.

Total lead content testing shall be performed quarterly by the product supplier. Tests shall include a minimum of five samples. Sample collection shall be conducted according to ASTM D75. The mean of these tests shall not exceed 80 ppm. Total lead content testing will be conducted according to EPA Method 3010/6010. All test results shall be kept on file by the product supplier.

9-05 STORM DRAIN AND SANITARY SEWER STRUCTURES, CULVERTS AND CONDUITS

9-05.2(1) SLOTTED PVC SUBSURFACE DRAIN PIPE (New Section)

All slotted subsurface drains and fittings shall be PVC per ASTM D1785, SCH 40 with solvent welded joints.

Screen shall be slotted uniformly with slots placed perpendicular to the longitudinal axis of the pipe in straight rows. Slots shall be free from any sign of burning or abrasion. Pipe slotting shall be performed by Farwest "Special Products Division" (1-800-438-3808) or approved equal. Screen opening slot width shall be .069 in. with 4 rows of slots spaced on 45 degrees centers covering only one half of the circumference of the pipe. Slot width tolerance shall be +0.005 to –0.015. Spacing between slots shall be 0.125 in.

Pipe and screen shall be installed true to line and grade and shall be free of cracks or defects. The interior of the pipe shall be cleaned of all dirt, excess water and other foreign material as the pipe laying progresses.

The slotted pipe shall be installed so that the solid half faces down. The location of the slots shall be in accordance with the Drawings.

SECTION 9-14 EROSION CONTROL AND ROADSIDE PLANTING

9-14.1(5) ENGINEERED SOIL MIX (New Section)

Engineered Soil shall consist of approximately 30% to 35% composted material per Section 9-14.4(9) by volume and approximately 65% to 70% gravelly sand meeting the specification herein. Soil components shall be mixed together to achieve a uniform consistency.

Gravelly sand shall meet the following gradation per Designation D 422 (Standard Test Method for Particle-Size Analysis of Soils):

Sieve Size	Percent Passing
2-inch	100
¾-inch	70 - 100
¼-inch	50 - 80
US No. 40	15 - 40
US No. 200	0 - 3

Prior to mixing of Engineered soil, Contractor shall submit a grain-size analysis per ASTM Designation D 422 (Standard Test Method for Particle-Size Analysis of Soils) from a representative sample of the gravelly sand material, demonstrating that it meets these specifications.

Stockpiled engineered soil, or engineered soil components stockpiled prior to mixing, shall be stored in a manner that prevents them from becoming wet from rain, stormwater runoff, or other sources of water. Soil mixing or placement shall not be allowed if soil area is saturated or has been subjected to water within 48-hours prior to mixing or placement. Engineer shall have final authority to determine if wet or saturated conditions exist.

The Engineered Soil mixture shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. Mixing of the Engineered Soil to a homogeneous consistency shall be done to the satisfaction of the Engineer. No soil mixing shall occur while raining on site or wet conditions exist.

Prior to placement of Engineered soil, Contractor shall submit testing to verify the organic content and permeability of the soil mixture meets the requirements specified herein. Organic content shall be between 4- and 10-percent by dry weight per ASTM Designation D 2974 (Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils). Minimum hydraulic conductivity rate shall be 4 inches per hour per ASTM Designation D 2434 (Standard Test Method for Permeability of Granular Soils) when compacted to 80-percent of maximum dry density per ASTM Designation D 1557 (Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort).

Soil shall also be testing for soil fertility and micronutrients. A copy of the test results with recommendations for amendments shall be provided to the Engineer. Laboratory recommendations for amendments required for optimum plant establishment and early growth shall be provided and incorporated into the soil by the Contractor at no cost to the Owner. Any additional amendments recommended by test results shall be organic and contain no deleterious materials that may enter the water in the swales.

Engineered Soil shall be placed in lifts not exceeding 6-Inches. Moisture condition the engineered soil mix shall be as needed for suitable placement and compaction. Engineered Soil within the 2-foot shoulder adjacent to pavement edge shall be compacted between 90% and 95% of maximum dry density per ASTM D-698. Place and compact fill to 0.5" below the surface of adjacent roadway. Remaining areas of Engineered Soil shall be lightly compacted by proof rolling with hand held equipment approved by Engineer, or other method as approved by Engineer. Use of mechanical vibratory compaction equipment is NOT permitted in swale area beyond 2-foot shoulder. No equipment shall be driven across or parked upon the soil once soil mix has been placed. Contractor shall contact SPU materials lab 10 days after soil placement for in situ density testing.

9-14.1(6) BIORETENTION SOIL MIX (New Section)

Bioretention Soil shall consist of approximately two-thirds approved on site soil per Section 2-03.3(19) and one-third Composted Material per Section 9-14.4(9) by volume, thoroughly mixed together. Bioretention Soil shall be pre-mixed either on site or off site prior to final placement.

The Bioretention Soil Mixture shall be a uniform mix, free of stones greater than 4-inches, stumps, roots or other similar objects larger than two inches. Mixing of the Bioretention Soil to a homogeneous consistency shall be done to the satisfaction of the Engineer.

No soil mixing shall occur while raining on site or wet conditions exist. Stockpiled native soil, compost for mixing into bioretention soil, and bioretention soil shall be covered with visquin in manor necessary to direct water from directly falling on or running toward stockpiled soil. Soil mixing or placement shall not be allowed if stockpiled soil is saturated or has been subjected to water within 48-hours prior to mixing or placement. Engineer shall have final authority to determine if wet or saturated conditions exist.

Site specific soil testing prior to placement of Bioretention Soil will be required on this Project. Soil testing shall be done by an approved independent laboratory. Soil testing shall include soil fertility, micronutrient analysis and organics content. A copy of the test results with recommendations for amendments shall be provided to the Engineer. Laboratory recommendations for amendments required for optimum plant establishment and early growth shall be provided and incorporated into the soil by the Contractor at no cost to the Owner. Any additional amendments recommended by test results shall be organic and contain no deleterious materials that may enter the water in the swales. Four (4) Working Days shall be allowed for testing.

Bioretention Soil shall be placed in lifts not exceeding 6-Inches and compacted by proof rolling with a water filled drum. Use of mechanical vibratory compaction equipment is NOT permitted. Contractor shall contact SPU materials lab 10 days after soil placement for in situ density testing. No equipment shall be driven across or parked upon the soil once soil mix has been placed.

9-14.4(7) SHREDDED MULCH (New Section)

Shredded Mulch shall be chipped and/or shredded tree trimmings, free of weeds, and shall not contain excessive resin, tannin, garbage or materials over a 6-inch length in any dimension. Trees and woody vegetation cleared on site, if any and as approved by Engineer, may be chipped or shredded and stockpiled on site for use as Shredded Mulch.

Off site sources for shredded tree trimming mulch include: Local utility tree trimming services and private tree trimming services (Seattle Tree Preservation, Inc., Ballard Tree Service, Inc., City Foresters, Asplundh) or approved equal. A two pound sample of Shredded Mulch proposed to be used shall be submitted to the Engineer for approval.

9-14.4(8) COMPOSTED MATERIAL (New Section)

Compost material must be in compliance with WAC chapter 173-350 Section 220 and meet Type 2,3or 4 feedstock; plus the following additional requirements. The Carbon to Nitrogen ratio of the compost shall be between 20:1 and 35:1. The compost shall have an organic matter content of 40 to 50% as determined by "loss on ignition" test method. The compost shall have a pH between 5.5 and 7.0 and maximum electrical conductivity of 6 ohms/cm. Moisture content of the compost should range between 35% and 50%. Manufactured inert material (plastic, concrete, ceramics, metal, etc.) shall be less than one-percent on a dry weight or volume basis, whichever provides for the least amount of foreign material. Material shall NOT have viable weed seeds, or heavy metals in excess of the limits shown in of Table A. The compost product shall originate a minimum of 65 percent by volume from recycled plant waste. Decomposed Organic Compost shall be mature as US Composting Council stability test ratings referred to in the WAC 173-350).

Table A - Metals

Metal	**Limit (mg/kg dry weight)**
Arsenic	< = 20 ppm
Cadmium	< = 10 ppm
Copper	< = 750 ppm
Lead	< = 150 ppm
Mercury	< = 8 ppm
Molybdenum[1]	< = 9 ppm
Nickel	< = 210 ppm
Selenium[1]	< = 18 ppm
Zinc	< = 1400 ppm

The product shall be tested, and test results shall document specified requirements. Manufacturer shall submit a certified lab report dated within 30-days of submittal. Submit one-gallon sample, source, letter of certification, and testing results from the supplier to Engineer a minimum of 5 days prior to product delivery on site.

Compost delivered to the site shall have a Solvita Compost Maturity Test performed on site, and must score a number 6 or above to be accepted. Solvita Compost Maturity Test is available from Woods End Research Laboratory, phone (207) 293-2457. Or 1(800)451-0337 or www.woodsend.org .

9-14.5(4) BIAXIAL GEOGRID (New Section)

Biaxial Grid shall be a regular grid structure formed by biaxially drawing a continuous sheet of select polypropylene material and shall have aperture geometry and rib and junction cross sections sufficient to permit significant mechanical interlock with the soil material being reinforced. The Biaxial Geogrid shall have high flexural rigidity and high tensile modulus in relation to the soil material being reinforced, and shall also have high continuity of tensile strength through all ribs and junctions of the grid structure. The Biaxial Geogrid shall maintain its reinforcement and interlock capabilities under repeated dynamic loads while in service and shall also be resistant to ultraviolet degradation, to damage under normal construction practices, and to all forms of biological or chemical degradation normally encountered in the soil material being reinforced. Coated polyesters will not be permitted.

Biaxial Geogrid shall also conform in all respects to the property requirements listed below for Tensar Biaxial Geogrid BX1120 (SS-1), BX1200, or approved equivalent product in materials and performance:

PROPERTY	TEST METHOD	UNITS	VALUE
Interlock			
-aperture size[1]	I.D. Calipered[2]		
-MD		inch	1.0 nominal
-CMD		inch	1.3 nominal
-open area	COE Method[3]	percent	70 minimum
-thickness	ASTM D1777-64		
-ribs		inch	0.03 nominal
-junctions		inch	0.11 nominal
Reinforcement			
-flexural rigidity	ASTM D1388-64[4]	mg - cm	250,000 min
-tensile modulus	GRI GG1-87[5]	lb/ft	14,000 min
-junctions	GRI GG2-87[6]		
-strength		lb/ft	765 minimum
-efficiency		percent	90 minimum
Material			
-polypropylene	ASTM D4101 Group 1/Class 1/Grade 2	percent	97 minimum
-carbon black	ASTM 4218	percent	2.0 minimum
Dimensions			
-roll length		feet	164
-roll width		feet	9.8 & 13.1
-roll weight		lb	71 & 95

Notes:

1. MD dimension is along roll length. CMD dimension is across roll width.
2. Maximum inside dimension in each principal direction measured by calipers.
3. Percent open area measured without magnification by Corps of Engineers method as specified in CW 02215 Civil Works Construction Guide, November 1977.
4. ASTM D1388-64 modified to account for wide specimen testing as described in Tensar test method TTM 5.0 "Stiffness of Geosynthetics"
5. Secant modulus at 2 percent elongation measured by Geosynthetic Research Institute method GG1-87 "Geogrid Tensile Strength." No offset allowances are made in calculating secant modulus.
6. Geogrid junction strength and junction efficiency measured by Geosynthetic Research Institute test method GG2-87 "Geogrid Junction Strength".

9-14.5(5) EROSION CONTROL BLANKET (New Section)

Erosion Control Blanket shall be a lofty web of polyolefin fibers between two high strength, biaxially oriented nets and bound securely together by parallel stitching with polyolefin thread. Every component of the blanket shall be stabilized against ultraviolet degradation and inert to chemicals normally encountered in a natural soil environment. The Erosion Control Blanket shall also conform to the following physical property requirements listed for Tensar Erosion Blanket TB-1000, or approved equivalent product in materials and performance:

PROPERTY	TEST METHOD	VALUE
Thickness (inches)	ASTM D1777	0.40 min
Weight (oz/yd)	ASTM D3776	10 min
Specific Gravity	ASTM D1505	0.91
Ground Cover Factor (%)[1]	Light Projection Test	65 minimum
Tensile Strength (lb/ft)	ASTM D1682 (2" Strip)[3]	175 x 110
Elongation (%)[2]	ASTM D1682 (2" Strip)[3]	40
Tensile Strength2 at 15% Elongation (lb/ft)	ASTM D1682 (2" Strip)[3]	90 x 90
Flexibility (mg.cm)[2]	ASTM D1388	10,000 min
Ultraviolet Stability % Strength Retained after 1000 hours	ASTM D4355	80 minimum
Color		Green
Roll Dimensions		
Length (ft)		120
Width (ft)		7.5
Area (sq.ft.)		900
Weight (lb)		63
Roll Diameter (ft)		2.5

Notes:
1. Ground Cover Factor represents "% shade" from light projection test.
2. Values apply to both machine and cross machine directions.
3. Machine direction specimen for 2" strip tests includes one machine direction polyolefin stitch line centered within its width and extending the full length of the specimen.

9-14.15 STORM DRAIN INLET PROTECTION INSERTS (New Section)

Inserts shall fit under standard catch basin/inlet gratings and be capable of removing contaminants such as oil and grease, sediment, floatables, and debris from stormwater and shall work without chemicals.

Inserts shall be made primarily from geotextile sewn together with monofilament thread. The geotextile shall be resistant to degradation from ultraviolet exposure and shall meet or exceed the following minimum property requirements:

STORM DRAIN INLET PROTECTION INSERTS

Fabric Property	*Test Method*	*Unit*	*Value*
Fabric Weight	*ASTM D-5261*	*oz/yd*	*8.0*
Fabric Thickness	*ASTM D-5199*	*mils*	*145*
Grab Tensile Strength	*ASTM D-4632*	*lbs*	*270/300*
Grab Elongation	*ASTM D-4632*	*percent*	*60/80*
Trapezoid Tear Strength	*ASTM D-4533*	*lbs*	*110/130*
Puncture Resistance	*ASTM D-4833*	*lbs*	*160*
Mullen Burst Strength	*ASTM D-3786*	*psi*	*535*
Water Flow Rate	*ASTM D-4491*	*gpm/ft^2*	*120 **
Permeability	*ASTM D-4491*	*cm/sec*	*0.5*
Permissivity	*ASTM D-4491*	*sec^{-1}*	*1.26*
U.V. Resistance	*ASTM D-4355*	*percent*	*70*
Apparent Opening Size	*ASTM D-4751*	*US Sieve (mm)*	*70 (0.212)*

The total water flow rate through the insert in new condition should be in excess of 500 gpm, with an overflow rate of approximately 250 gpm.

Products: Storm Watch Catch Basin Insert (for sediment only) as manufactured by Price-Moon Enterprises (Or equal); StreamGuard Sediment Catch Basin Insert, #3003 (or equal)